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Emergence of Heidegger's philosophy of technology in Being and time

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THE EMERGENCE OF HEIDEGGER'S PHILOSOPHY OF TECHNOLOGY IN BEING AND TIME

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This thesis examines Heidegger's philosophy of technology with a view toward elaborating and clarifying our concerns about modern technological society. His mature works serve as a bold counterpoint to the indecisiveness which surrounds technology as a philosophical problem. Heidegger's concern is that technology, as the destiny of our modern age and the way in which being is disclosed, will eclipse both other modes of disclosure and man's ability to respond to that disclosure. Such a striking but austere stance leaves us with two major problems: 1) what is the role of human responsibility, and thus freedom, in this destiny of being, and 2) how can we make good Heidegger's call to attend things such that there is sufficient counterweight to technology.

The elaboration and illumination of this stance is made through Being and Time. Here Heidegger analyzes man's relationship with the world in a full and concrete way, and the work thus provides a suitable basis for examining an everyday orientation toward things. Though Being and Time elaborates Heidegger's position against a background of traditional philosophy, we see that it remains ambiguous in regards to delineating a counterposition to technology. The inauthentic existence of the "they" illustrates in a concrete way modern technological living. But since Being and Time seeks to articulate the antecedent conditions of man's existence it must articulate both authentic and inauthentic existence. At the transcendental level Being and Time cannot distinguish between the two. The resolution of this ambiguity comes in Heidegger's commitment to the disclosure and orientation given by things as seen in his mature work.

Thus by reading his mature works through Being and Time we fill out Heidegger's cryptic declaration concerning technology. The reference and orientation given in our everyday concerned dealings reveals what is lost by the ordering of resources. In such a reading we see the meaning of authentic resolve towards things, the social setting of technology, and the responsibility of reform in our day-to-day undertakings.

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1. Introduction

Heidegger's vision of technology must illuminate our intuitions and concerns about modern technological society if his vision is to have any bearing on the clarification sought in a philosophy of technology. That is, if our intuitions and concerns about technology are not sharpened in such a way that technology and its influence are made perspicuous, then we gain little by studying Heidegger. These concerns are decisive: they serve as the mooring for our inquiry of technology, allowing us to sort out the complex and sometimes confusing aspects of modern technological living. Indeed, the lack of vision or orientation in technology prompts us to seek clarification; that lack of orientation can only be recognized against the background of a concern.

The philosophy of technology has only recently emerged as a distinct field. Yet recognition of and consensus within this area on what the problems are seem to be on the distant horizon. As Paul Durbin points out, the subject of technology has in the past twenty years gone from tangential mentioning to the publication of an annual devoted specifically to the problems of technology.[1] This neatly traceable emergence comes with the growing recognition that technology plays a major role in our lives. What is not clear is what, if any, distinctively philosophical issues technology poses.[2] Initial discussion in the field centers around what technology is, and on its relation to other endeavors, e.g., science, politics, or economics. But much emphasis is also placed on concrete political and ethical issues, such

as the environmental crisis or medical heroics, where technology plays a direct and obvious role.[3]

Still the recognition of technology as a philosophic problem remains elusive: the topic remains outside the discussion of standard philosophic problems. It is not covered in anthologies used to initiate students to philosophic concern; its discussion takes on the air of a specialized field of interest without connection to larger philosophic endeavors. In Anglo-American philosophy, philosophy of technology has developed out of historical and sociological approaches; Mumford's Technics and Civilization reflects this.[4] The social concern over technology has developed an intense interest in the moral problems of biomedical technology. But this area of interest, as Carl Mitcham points out, is not sharply defined either.

> At some point bioethics begins to shade into another less well-defined area, the multifaceted environmental issue. Philosophical questions clustering around problems of pollution, ecology, energy, the social responsibility of scientists, technology assessment, and alternative technology all relate to philosophy of technology. In fact, they are likely to become primary foci.[5]

Clearly the attention philosophers do pay to technology signals that "something of a problem" is emerging, but what it is is clouded by the many and ambivalent manifestations of technology and the ill-defined role it has as a problem.[6] The divergence of foci listed above, the various approaches one may take, as well as the nagging question about precisely what one means by 'technology' attest to the morass in which philosophy of technology finds itself. Indeed, there are those who contend that there is no problem with technology to begin with, save its

imperfection, cured by utilizing more and better technology.[7] There are those who find the proper analysis of technology in economics, the social sciences, or engineering, since analysis of technology may be given in all of these areas and there would be little, if any, contribution by philosophy.[8]

But there is a third possible reason for our inability to find anything at issue in technology: technology is the unquestioned and dubious presupposition of our lives; to acknowledge a problem here is tantamount to recognizing a flaw in the fabric of our lives. Does one muse professionally about crucial difficulties in one's life? It is questionable whether or not the emergence of technology as an academic field of inquiry will quell any disconcertion we might recognize. Yet concrete political and ethical issues as well as personal misgivings and findings of the social sciences indicate, in a vivid and strident way, the unease we have with technology, an unease that demands our sorting out technology's manifest form and ramifications.[9]

Alvin Toffler, in Future Shock, predicted that technology would, in its rapid turnover and increased diversity, render us helpless in coping with change.[10] We would be in effect numbed by its successes and not know what to do in its presence. We have had a decade to decide if this prediction has come true, and its test reveals two interesting results. First, we have witnessed a marked increase in the turnover and diversity of technological devices, raising the question of what do we turn to as an example of modern technology. The difficulty we have in answering the question stems precisely from the fact that technology makes obsolete the devices it produces. The precision Swiss chronometer

has given way to the battery powered watch, which was in turn succeeded by the electronic watch, first with light-emitting diode display, then with liquid crystal display. In each case the timepiece stood for the highest advancements only to be overcome by more technological innovation. This exacerbates the problem of identifying what 'technology' means amongst its divergent forms. Second, and most important, is the lack of evidence for any "shock," any inability to cope with technology. If anything, we have accommodated ourselves quite nicely. If in fact we have absorbed technology and accepted it, what then seems to be the problem? On the surface, nothing. Yet there are still nagging personal, political, and ethical concerns which seem, however, vague and distant. The failure of Toffler's prediction brings home more emphatically the elusiveness of the problem.

It would be fruitful, then, to begin an exploration into the problem of technology by sorting out its divergent manifestations with the aim toward accounting for its elusiveness.

Mitcham has attempted a systematic exploration of the manifestations of technology. He points out that 'technology' has both a broad and narrow use, taken up by social scientists and engineers respectively.[11] For engineers technology has the strict meaning of the process of material construction; social scientists expand this definition to include " . . . all making of material artifacts, the objects made, their use, together with their intellectual and social contexts."[12] Though 'technology' refers primarily to the making of artifacts influenced by modern science, Mitcham contends that 'technology' " . . . is not a univocal term; it does not mean exactly the same thing

in all contexts. It is often, and in significant ways, context-dependent--both in speech and in the world."[13] If we take, with Mitcham, philosophy of technology as the attempt to give a reasoned account to the "nature and meaning of technology," then the need for a philosophy of technology becomes apparent in the need to examine and account for the breadth of the use of 'technology'.

Mitcham provides a typology of technology which allows for a systematic appraisal of definitions and descriptions accounting for the divergence he recognizes.[14]

> Distinctions among technologies may be said to create a three dimensional grid. First there are the obvious subject or material distinctions between chemical technology, electrical technology, etc. Second, there are functional or structural distinctions. Third, there are social or historical distinctions. . . .[15]

The subject or material senses are closely alligned with the narrow sense of 'technology' and are usually the subject of investigation by the social sciences. The structural or functional dimension proves most fruitful in providing fundamental distinctions necessary for a definition which underlies the various manifestions of technology.

Mitcham divides this dimension into concepts which parallel the standard conception of humans interacting with the natural world: human's internal thought processes; bodily and social interaction and activity; and the resultant objects of that activity, which take on independent status in the natural world. The functional concepts of technology, then, are knowledge, process, and technological objects or products.[16] Mitcham emphasizes a fourth concept, technology-as-volition. This concept covers the activity of use, i.e., to what end objects are

used is determined by a will. He emphasizes this concept because the volitional aspect of human action in technology is the most underformulated. There is little consensus as to what the will is as a philosophic concept, yet it is employed in discussions of technology.[17] Skolimoski, for instance, distinguishes science from technology on the basis of science's concern with what is and technology's shaping what is to be on the basis of our desires.[18] The question of will in technology points to crucial questions about humankind's strivings and aspirations, the role of technological objects in those aspirations, and ultimately about human nature itself.[19]

According to Mitcham's scheme, the classification of technological objects involves the distinguishing of various types of objects. Again, this has a close relationship to classification within the narrow sense of technology. The central philosophic issue is "what counts as an artifact of technology? What distinguishes technological objects from non-technological objects?"[20]

What may be most distinctive of technology is the process of making and using. Mitcham finds process, as the fundamental category, characteristic of both engineers and social scientists: engineers stress making, social scientists using.[21] This category, then, covers invention, design, and fabrication as well as the macrostructures of production and social institutions for utilization of products. Mitcham cites Jacques Elull's The Technological Society as the most comprehensive contemporary example of work in the area of technology as process.[22] For Elull, modern technology is technique which pursues efficiency in a rational way.[23] What is decisive is not the internal

structure of technology but the relation between technical phenomena and society manifest in activity, social organization, and the traditional arts of cultivation, e.g., medicine and education.[24]

Technology as knowledge most closely aligns with philosophy of science. The distinguishing feature of modern technology is its rooting in modern science. M. Bunge and S. Carpenter recognize that science is a necessary condition for the prescriptive rules of technology. A scientific law in the form "If A, then B" is descriptive of reality in that a law subsumes a concrete event by way of special conditions. For example, laws of crystalline arrangement can explain why, when carbon is added to iron, it becomes harder, by specifying the placement of carbon atoms in an iron lattice. The positioning of the carbon atom can account for tensile strength and crystalline flexibility in terms of how the carbon alters the packing arrangement in the lattice. Technological Rules apply scientific laws in a prescriptive way: "To get B, do A." By specifying the desired results and the relevant law, the special conditions are prescribed. Thus chemical bonding laws, along with specification of how hard one wants steel tempered, prescribe how much carbon and heat is required. Scientific explanation gives theoretical grounding to skills once acquired through trial and error and passed on through apprenticeship. To make progress in a technological field one employs scientific laws for articulating successful generalizations. Mitcham includes cybernetics as information or systems theory in technology-as-knowledge since it is an attempt to give a general account of the control of information.[25]

Mitcham's scheme of concepts is a serious attempt to cut through

debilitating diversity and reductionism.[26] Though this is not the only typology, it is typical in that no problem surfaces. Within this format problems may be settled on the basis of what counts as an adequate solution (the criteria of which are to be worked out within a given area).[27] Still what is crucial has yet to be addressed as Mitcham himself indicates--his stress on technology as volition reveals an intuition that what is bothersome (and inspiring) about technology lies here; he only delineates the area without hazarding an investigation.[28]

This approach to a philosophy of technology emerges as broad but thin and vague in explicating the features of technology. Against this we lay Heidegger's radical theme: technology is the destiny of modern man and it leads to disaster.

Nothing decisive emerges from a typological approach to technology. Problems are thinned out by dispensing them to the various areas within the typology where they are handled in disparate ways in the respective areas. Technology as a problem now becomes as diverse and disparate as the typology itself: the insight into technology in one area may be inapplicable or incompatible in another. The employment of scientific laws in modern technology may help in deciding if an artifact is a (modern) technological device, but the insight bears little on the ethical concerns of technology.

Such a philosophy of technology lacks a distinct and decisive definition of what technology is and what its problems are. For Heidegger there is no question as to what the problem is: there is the real possibility that technology will absorb humankind into its framework and thus wipe out any exercise of human freedom. Heidegger asks:

What is the essence of technology and human beings' relation to it? The answers are pointed and forceful: technology is the destiny of being and we aid and abet the impending eclipse of what truly graces and sustains our lives. The suggestiveness of Heidegger's inquiry is in part the bold contrast against vapid investigations into the extension of technology, and in light of this contrast we would do well to take note of Heidegger's thought.

His radical approach as hermeneutics and his phenomenological rooting have encouraged others to follow suit.[29] However, Heideggerian scholarship leaves something to be desired. W. Lovitt's "Techne and Technology," for example, merely recapitulates Heidegger's position on technology without regard to the suggestions Heidegger has for overcoming the problem of technology.[30] Similarly D. Ihde examines in a phenomenological analysis our debilitation through technological devices but does not extend his inquiry to an examination of invigorating praxis.[31] The danger of recapitulating Heidegger in his own vocabulary is that there is little concrete meaning for those not familiar or inclined toward that vocabulary.

Our inquiry, then, should explicate the problems and suggestions of Heidegger's philosophy of technology in lucid terms, i.e., his suggestions should be articulated such that we may compare them with our own intuitions and observations about technological living. Though his concerns may not be ours, if Heidegger's radical thought is suggestive at all, we should be able to clarify our responses to those intuitions based on those suggestions.

To begin, then, let us examine Heidegger's claim that technology is the destiny of modern man. The later works hold this as the central theme. The essays "The Question Concerning Technology" and "The Turning" are the keystones in elaborating this theme.[32] But the impending eclipse of being must also be set against the focusing power of things where being is brought to the fore. It is Heidegger's contention that the essence of technology eclipses this focal power and we humans are accomplices in the "injurious neglect" of those focal things.

2. Heidegger's Mature Philosophy of Technology

The essence of technology for the mature Heidegger is a revealing "which puts to nature the unreasonable demand that it supply energy that can be extracted and stored as such."[33] Nature is revealed as a resource to be unlocked and "directed from the beginning toward furthering something else."[34] The revealing of technology summons (fordert heraus) nature to be a resource: "Everywhere everything is ordered to stand by, to be immediately at hand, indeed to stand there just so that it may be on call for a further ordering."[35] I.e., resources are secured and regulated to stand by.

> In the context of the interlocking processes pertaining to the orderly disposition of electrical energy, even the Rhine itself appears at our command. The hydroelectric plant is not built into the Rhine River as was the old wooden bridge that joined bank with bank for hundreds of years. Rather the river is dammed up into the power plant. What the river is now, namely, a water power supplier, derives from out of the essence of the power station.[36]

It is humankind which challenges the real to be a resource; human beings drive technology forward. "But," Heidegger says, "the unconcealment itself, within which ordering unfolds, is never a human handiwork. . . ."[37] Man is claimed by what is open to him to respond as he does. "The unconcealment of the unconcealed has already come to pass whenever it calls man forth into the modes of revealing alloted to him. When man, in his way, from within unconcealment reveals that which presences, he merely responds to the call of unconcealment even when he contradicts it."[38] The name for this claim, the disclosure of the real

as ordered resource, upon humans is Gestell or framework.

The real is ordered in accordance with modern science. In physics, " . . . nature reports itself in some way or other that is identifiable through calculation and that it remains orderable as a system of information."[39] Though technology uses science, science is in fact the herald of the essence of technology. The representation of the real (as calculable) is the framework which is the essence of technology.

On the surface, then, technology appears to be simply a human activity. What refutes technology as merely instrumental, however, as merely a means to an end, is that the essence of technology lays claim to humans. Humans order nature as resource in order to accomplish ends; but nature, i.e., the real, reveals itself as something to be ordered. The framework places humans in the position "to reveal the real, in the mode of ordering as" resource.[40] The kind of disclosure which claims humans to stand in this essential realm is a destining: the framework sends human beings into this way of revealing.

> Yet Heidegger maintains humans do have freedom.
>
> But that destining is never a fate that compels. For man becomes truly free only insofar as he belongs to the realm of destining and so becomes one who listens and hears, and not one who is simply constrained to obey.[41]
>
> Freedom governs the open in the sense of the cleared and lighted up, i.e., of the revealed. . . . Freedom is that which conceals in a way that opens to light, in whose clearing there shimmers that veil that covers what comes to presence of all truth and lets the veil appear as what veils.[42]

Doxographically put, Heidegger says that human freedom is bounded

by and made sense of in contrast to the revealing which "holds sway over him," which claims him. The framework calls humans, but humans come to hear and listen. The ability "to hear and listen" is the arena of freedom. But difficulties arise when Heidegger says that the framework grants humans entry into the open, into the disclosure of the revealed.[43]

The danger of technology is twofold: First, when everything is ordered as resource, everything that humans encounter exists only insofar as it is that construct; second, for lack of "standing out" everything is leveled to resource and men will take themselves as a resource.[44] The framework veils revealing as such, for ordering is seen as the only and unquestionable mode of dealing with reality.

> But the danger, namely, being itself endangering itself in the truth of its coming to presence remains veiled and disguised. This disguising is what is most dangerous in the danger.[45]

But it is in this heightened danger that "the saving power grows." The radical and disguised closing off of other possibilities grants humans the opportunity to gain their highest dignity.

> This dignity lies in keeping watch over the unconcealment--and with it, from the first, the concealment--of all coming to presence on this earth. It is precisely in the framework which threatens to sweep man away into ordering as the supposed single way of revealing, and so thrusts man into the danger of the surrender of his free essence--it is precisely this extreme danger that the innermost indestructible belongingness of man within granting may come to light. . . .[46]

Clearly the framework of ordering is not itself that which allows man to guard other possibilities of revealing. But the framework harbors the saving power insofar as it contrasts with what is being

obliterated. The revealing of the framework disguises itself by obliterating any contrasting modes of disclosure. But as the closing off of other possibilities of revealing nears we have a flashing glance of what is lost.

> When oblivion turns about, when world as the safekeeping of the coming to presence of being turns in, then there comes to pass the in-flashing of world into the injurious neglect of the thing.[47]

> Only when insight brings itself disclosingly to pass, only when the coming to presence of technology lights up as framework, do we discern how, in the ordering of resource, the truth of being remains denied as world. Only then do we notice that all mere willing and doing in the mode of ordering steadfastly persists in injurious neglect.[48]

In neglecting things, man neglects the world in the dimensions of earth, sky, mortals, and divinities.[49] A thing focuses these dimensions in what Heidegger calls the mirrorplay of the fourfold. In his description of a jug he shows how each dimension is drawn together and then reflected in the others. The jug holds the wine, fruit of the vine, planted in the soil, soaking rains from the sky. Mortals who walk on earth, under the sky, drink the wine in libations to the gods. It is in the mirrorplay of these dimensions that man meets his own essence: he guards the world as it is focused in a thing. For he too is drawn in the focus of a thing. By neglecting the disclosure of things, man neglects his essence and ultimately himself.

Questions remain as to the nature of the revealing of technology and its relation to human action (and ultimately human dignity). Disclosure makes something present, but there is a strong and weak sense of what it is to make present. In the weak sense, making present means

that what was once hidden comes out of the background and into the fore; in the strong sense, what is revealed is constituted in some Kantian fashion, i.e., the framework molds an amorphous stuff such that the real could not be other than resource.

Heidegger clearly wants to reject the notion that we are mere slaves to technology, but neither do we have unbridled freedom in its employment. Between these extremes, then, in what sense does technology reveal? We are asking for a clarification of what Heidegger means by holding sway: to what extent our freedom is unbounded, and what and where the opportunities are to "hear and listen." The weak sense of making present is too weak for Heidegger as it resembles the instrumental approach to technology: technology merely highlights things in ways hitherto unforseen. But the strong sense implies some sort of constraint "to obey": ordering, making the real, implies that the framework allows us only to see the real as resource so long as it "holds sway" over us, the real is resource; we have no choice as to how to attend to the real and there is no occasion for human dignity.

How, then, do we as humans exercise the dignity that is ours? In the "Question Concerning Technology" Heidegger only suggests that we can in fact exercise that dignity; in "The Thing" he shows us what and how a thing may disclose. But these are only two bold and vivid penstrokes in the sketch. Heidegger's suggestions fail to illuminate in a fuller way the area where human dignity and the focal power of things coalesce and act as a counterforce to the injurious neglect in the framework of technology.

3. The Context of Technology in Being and Time

Being and Time, as Heidegger's initial major work, is a broader inquiry in its scope and, I believe, can fill out and highlight the suggestions and answer the questions raised in the mature works. It is his philosophy in the making in that it approaches, programmatically, the meaning of 'being'. By seeking the meaning of 'being' within the context of the temporal, Heidegger sets himself off against previous philosophical thinkers. The scope of the book addresses itself not only to established scholarship but also attempts to incorporate the concrete meaning of 'being'. Thus Being and Time proves helpful in that it fills out Heidegger's position empirically and indicates where that position is located in terms of traditional philosophical problems.

But seeing that Heidegger abandoned the direction and style of thought developed in Being and Time, what sense would it make to return to this work? It is obvious enough that Being and Time provides a counterpoint for Heidegger himself: he never completed the book, his mature works take the form of essays, he abandons the foundational approach in favor of exploration. I turn to Being and Time because it can provide background for his striking but cryptic suggestions, for it is here Heidegger attempts an elucidation of relations between human beings and their world and the things in it. The accent he places on the world provides the context: It is in terms of the world and its relations that we can ask in what setting we as humans have occasion to exercise our dignity in regards to things, what and where we have

responsibility for technology, how the framework orders the real for us in regards to science.

To be sure, Being and Time is not without its difficulties and questions. Hence both the mature works and Being and Time should cast light on each other, highlighting in a fuller manner the suggestions Heidegger makes. But we must also be aware of difficulties with the suggestions themselves.

In Being and Time Heidegger wishes to work out concretely the meaning of being.[50] The meaning of being had been neglected in the past because the tradition thought it universal, self-evident or undefinable. But none of these presuppositions is helpful, for the concept of being remains inexplicit and thus ignored. Heidegger, then, in order to break the complacency of the tradition calls for a renewed investigation into the meaning of being. He argues that without explicit understanding of being the explication of the being of entities cannot be clearly known.

> The question of being aims therefore at ascertaining the a priori conditions not only for the possibility of the sciences which examine entities as entities of such and such a type, and, in so doing, already operate with an understanding of being, but also for the possibility of those ontologies themselves which are prior to the ontical sciences and which provide their foundations. Basically, all ontology, no matter how rich and firmly compacted a system of categories it has at its disposal, remains blind and perverted from its own aim, if it has not first adequately clarified the meaning of being, and conceived this clarification as its fundamental task.[51]

Foundational philosophy, as Heidegger's program in Being and Time, aims at the clarification of the meaning of being, and in the process, anchors in this clarification the formulation of the basic concepts for research in the sciences.

> Basic concepts determine the way in which we get an understanding beforehand of the area of subject-matter underlying all the objects a science takes as its theme, and all positive investigation is guided. Only after the area itself has been explored beforehand in a corresponding manner do these concepts become genuinely demonstrated.[52]

Foundational philosophy grounds a particular science by delimiting the area to be studied as well as providing the concepts which are used to explicate that area. But more concretely, what is the ground of these concepts?

This, of course, is the task undertaken in Being and Time. Heidegger turns to human being in order to gain access to the meaning of being. Humans stand out as beings since they can raise the question of being: humans understand being.[53] To denote the distinctiveness of human beings, Heidegger uses the term Dasein, literally being-there. The import of this locution becomes clear when we recognize, as Heidegger would have us do, that humans belong essentially in a world. Thus to be human is to be there in a world. " . . . Dasein's understanding of being pertains with equal primordiality both to an understanding of something like a 'world', and to the understanding of the being of those entities which become accessible within the world."[54]

Dasein finds itself always and already within a world. Thus the ground pointed to by humans is being in the world, concretely and richly. The meaning of being is to be found in the fullness of the world. To exhibit that fullness Heidegger first turns to our everyday dealings which are close at hand. Our dealings take place within an environment (an Umwelt or, literally, an around world) wherein the entities we encounter take on meaning in terms of that environment. The

entities we encounter in our dealings are equipment, and the being of equipment is ready-to-hand.[55] The structure of the being of what is ready-to-hand as equipment is determined by references and assignments.[56] The fruitfulness of Heidegger's point can be illustrated through an analysis of a spoke wrench. A piece of solid hexagonal bar stock, with a slit on one face an eight-of-an-inch wide cut half way through the bar and having two three-quarter inch small diameter rods welded perpendicular to the slit creating a cross member, describes a spoke wrench in the context of bicycle repair. The width of the slit has reference to the width of the ridge at the end nut of a spoke. An untrue wheel calls attention to its need of repair with annoying vibration when riding. The untrue wheel refers to the spoke wrench as the tool to carry out the needed repair.

The apprehension of the world around us, by which we guide and manipulate equipment, Heidegger calls circumspection. Circumspection is concernful in that one apprehends the world with an eye toward the ready-to-hand and the relation of its assignments and references. What is important to recognize is the richness with which circumspection views: the fullness of the world is always within the purview of circumspection since the ready-to-hand is related to other entities in a referential context. Equipment always operates within a totality of equipment:

> Equipment is essentially 'something in-order-to. . . .' A totality of equipment is constituted by various ways of the 'in-order-to,' such as serviceability, conduciveness, usability, manipulability.
>
> In the 'in-order-to' as a structure there lies an assignment or reference of something to something.[57]

The explicit view of a particular assignment illuminates the context of that assignment; hence, the world announces itself as the totality which provides the context for the assignment.[58]

To use a piece of equipment is already to have an understanding of the use of that particular piece of equipment, where its use is appropriate, and of what end it serves. The character of equipment, then, is involvement:

> . . . the structure of letting it be involved implies that this is an involvement which something has--an involvement which is with something. Dasein always assigns itself from a "for-the-sake-of-which" to the "with-which" of an involvement, that is to say, to the extent that it is, it always lets entities be encountered as ready-to-hand. . . . The "where-in" of an act of understanding which assigns or refers itself, is that for which one lets entities be encountered in the kind of Being that belongs to involvements; and this "where-in" is the phenomena of the world.[59]

When Dasein circumspectively involves itself with equipment it finds itself "there" in the world. The "there" is indicative of the disclosure of the world.

> In terms of the significance which is disclosed in understanding the world, concernful Being-along-side the ready-to-hand gives itself to understand whatever involvement that which is encountered can have. To say that "circumspection discovers" means that the 'world' which has already been understood comes to be interpreted. The ready-to-hand comes explicitly into the sight which understands. . . . That which is explicitly understood . . . has the structure of something as something. The circumspective question as to what this particular thing that is ready-to-hand may be, receives the circumspectively interpretive answer that it is for such and such a purpose.[60]

The hexagonal bar stock serves as a spoke wrench when I understand how it fits the spoke nut and when a wheel needs to be trued. Heidegger is not saying that we overlay interpretation and understanding on an

entity; rather the entity is already ready-to-hand: we interpret it as a tool to tighten spokes on the basis of our understanding how spokes pull on the rim and of the significance of a rolling wheel.

Against the background of significance and involvement in the world, Heidegger argues science is a derivative way of taking up with the world. The view of the world science gives us is that of the presence-at-hand of entities, a view which shows a distinctive lack of concern for the significance of the world. Science is a theory, to be sure, i.e., it does give us a vision of reality and of how reality fits together. Indeed, science's task is to study entities as objects and their relation to one another. But " . . . by looking at the world theoretically, we have already dimmed it down to the uniformity of what is purely present-at-hand, though admittedly this uniformity comprises a new abundance of things which can be discovered by simply characterizing them."[61]

The pivot for Heidegger is presence-at-hand as it contrasts with our involvement with things ready-to-hand. When entities are ready-to-hand we view them with circumspective concern; when entities are present-at-hand we "merely stand beside them," i.e., we do not take up with them in terms of a reference to significance. Entities which are present-at-hand are indifferent as regards their relation to Dasein.[62] By not involving ourselves with entities, they do not simply disappear, but it makes no difference to us which entity we are beside since their presence is seen as the same. We could be beside any entity: there is no assignment to significance because the referential context is not sustained. Dasein, however, never operates without some concern, albeit a privative

one. There is simply no circumspective concern with entities taken up as present-at-hand.

Knowledge exemplifies both the derivative character of being alongside entities as well as the primordiality of the being-in-the-world with the ready-to-hand. Formally, knowledge is considered to be a relation between subject and object.[63] This relationship holds difficulties so long as the subject's ability and capacity to know remains unclarified. But whenever and however philosophy turns its attention to the subject, philosophy abandons the world. In sidestepping and abandoning the world and Dasein's involvement in it, philosophy is the traditional problem of Descartes and Kant. Descartes' problem of the external world could only arise where Dasein withdraws from the world (thus breaking a primoridial relation between Dasein and its context) and the isolated subject tries to piece together the fragments.[64] But the fragments are taken as present-at-hand: Dasein is merely alongside entities, and nothing of the world is disclosed in its significance. If, however, we presuppose that Dasein is already in the world, then Dasein's capacity for knowledge is clarified in its involvement with entities. Dasein already understands and is open to the world when it is involved. Thus Dasein does not have to step out of the world and then return in order to know it. But Dasein may choose to stand alongside entities: Dasein, then, has neglected involvement but this is not a withdrawal from the world on the order of Cartesian doubt. "In this kind of 'dwelling' as a holding-oneself-back from any manipulation or utilization, the perception of the present-at-hand is consummated."[65]

For Heidegger the development of this line of thought makes

fertile the "theoretical science," most explicit in mathematical science.

> . . . The paradigmatic character of mathematical natural science does not lie in its exactitude or in the fact that it is binding for 'Everyman'; it consists rather in the fact that the entities which it takes as its theme are discovered in it in the only way in which entities can be discovered--by the prior projection of their state of Being.[66]

This prior projection is that of present-at-hand. Science as both a vision of the real and the foundation of knowledge strips entities of their worldhood by reducing them to the status of present-at-hand, despite this being a privative mode.

We can sharpen this point by using space as an illustration and by distinguishing between lived vs. Cartesian space. In science the present-at-hand becomes the theme of our concern: entities are only looked at. Two results follow from this: the tool character of an entity is overlooked (and with it the referential totality of the world), and the entity's place (in the context of the world) is now a matter of indifference.[67] An entity is now located in a three-dimensional space. That entity could be located anywhere else in that space, or any other entity could take its position. Heidegger argues that location in what is here called Cartesian space can only arise from the context of what we can call lived space. That is to say, Cartesian space is founded on lived space.[68] Equipment belongs in a place, i.e., involvement with equipment gains the orientation of its use from a contextual totality. Scientific space could only arise from within a world close-by.

> The homogeneous space of Nature shows itself only when the entities we encounter are discovered in such a way that the worldly character of the ready-to-hand gets specifically deprived of its world-hood.[69]

Scientific space reduces the place of entities to a grid where the referential bonds of those entities are broken and one is now free to interchange any one entity with another.

The project of Being and Time is foundational in the sense that science is derivative of and thus founded on--being fully in the world. We must remember that Being and Time seeks the a priori conditions for the possibility of a science, and these a priori conditions, are in one sense, formal, i.e., they delimit the area a science may operate in by defining and articulating the basic concepts with which a science deals. Heidegger, then, wants a strong sense of foundational: the ontological possibilities of Dasein's being in the world are the antecedent conditions to which the sciences turn for clarification of any problems they have regarding their areas of investigation. Just as genetics is founded on molecular biology, or geometry on axiomatic systems, so too are the sciences founded upon Dasein's being-in-the-world. Without molecular biology, genetics would be unclear in its explanations of the mechanisms which bring about changes in the gene pool. Comparisons of different geometries would be imperspicuous without reference to an axiomatic system. By turning to molecular biology, we see how a system of recombination between certain molecules produces changes in genetic make up. There can be a limited number of these molecules, but as molecular biology shows, the number of possible combinations applies not only to human genetics but to other living beings as well. As a

formal system molecular biology supports a study of genetics across all species of life. In geometry an axiomatic system allows us to compare various meanings of basic concepts, such as point, line, and plane, while making sense of their meaning in Euclidean and non-Euclidean geometries alike. The comparison is made by referring back to a general axiomatic system and seeing how the concepts and actions differ in their functions within a given geometry. The formal system allows for such comparisons.[70] Analogously, the formal structure of Dasein's being in the world is the ground for the sciences.

Heidegger later abandons the notion that the sciences take their cue from philosophy but still retains implicitly the notion that science is derivative. Science, in its essence, is calculative-representative and is the herald of modern technology. The contrast in the mature Heidegger is between the focusing power of things and science's calculative nature rather than the formal structure of Dasein's being in the world and the view of reality deprived of its worldhood as given by science. The crucial question to ask in regards to the nature of technology is whether or not Heidegger's characterization of science, as either derivative or calculative, is a fair appraisal of science. Just what is science and what is its relation to technology? Does science in fact neglect things as Heidegger has it in Being and Time, or decompose and displace things as the mature Heidegger has it?

To begin let us distinguish three senses of science: science as a body of laws; the human activity or enterprise of finding those laws; and the application of those laws. Science is most recognizable in the latter two senses. Our educational as well as research institutions

embody science as the activity of applying scientific laws. Experiments are carried out in order to indoctrinate students in the ways of scientific research. Students learn how to formulate experiments on the basis of known laws and what counts as validation of a law in the experimental procedure. Application of laws may encompass a wider domain than use in an experiment; laws predict behavior and on the basis of a prediction a researcher can adjust certain knowns to obtain a desired result. I will elaborate this particular use of scientific law later. For now let us recognize that a body of laws is the central sense of science in that the latter two senses rely on it. The question for us, then, is what is the relation of scientific laws, things, and technology?

Scientific explanations take deductive-nomological form; that is to say, a scientific law explains an event by subsuming it by way of initial conditions. The more general the formulation of the law, the broader the scope of application becomes. The most general laws should apply to all things in want of explanation. A particular oak tree may be analyzed in terms of the cellular structure of the bark, the leaves, xylem and phloem. We may sharpen our analysis by examining the structure of each of the various cells by employing the principles of molecular biology; or still more precisely by turning to the laws of biochemistry, biophysics, and, at bottom, subatomic particles. In the realm of subatomic particles we gain the most precision in regards to explanation.

The laws of particle physics delimit what is possible in physical reality. No event in physical space may be placed outside the bounds of what the laws prescribe since all physical events may be described by the movement of their subatomic particles. By recognizing that

events must be placed within the network of particle physics, the laws of subatomic physics delimit a possibility space for all events. That is, no physical event may occur outside the purview of these laws, hence any possible physical event is possible only within the bounds of these laws. The laws, then, describe a possibility space for physical events. For example, the laws of relativity state that the speed of light is constant for all observers and constitutes a limit for the velocity of objects. The laws describe a possibility space wherein one could not travel at the speed of light and where one's mass would be seen as increasing relative to a "stationary" observer. If we were told of an event where travel was faster than the speed of light we would have to say either that is impossible or consider it a contesting of the law, in which case we would demand further evidence and explanation.[71]

But at the most precise level of explanation, that of subatomic particles, the laws cover or apply indifferently to anything whatever. More precise laws increase the extension of the set of things to which the laws may apply. We can see this in terms of laws describing a possibility space. Boyle's law describes, in general, the behavior of gases. We may explain the boiling over of a coffee pot left unattended. Pressure increased because of an increase in temperature (due to the prolonged stay on the burner) in a confined volume (the coffee pot). Pressure increased to the point where it would exert enough force to lift the lid of the coffee pot; pressure was released (i.e., decreased) when breaking the seal of the container increased the available volume. Boyle's law does not explain, however, the expansion of the metal of the container during this event. Here we must turn to laws governing solids.

Each type of law describes what may be possible under the purview of the respective laws; in turn these possibility spaces must fall within the possibility space of all physical events. Indeed, we may draw together the disparate explanations under one set of laws, say that of kinetic motion. But here the law is indifferent as regards which atom or molecule is being described. The law applies equally well to the water molecule being boiled for coffee or the iron atom in the lattice of the coffee pot. Though we must recognize to some extent the context of explanation (an iron atom's being part of a lattice network will be part of the initial conditions and thus be distinguished from a water molecule), the laws remain indifferent because they describe a possibility space, i.e., an explanation of either an iron atom or a water molecule or a whole raft of other molecular and atomic activities. The possibility space of subatomic particles is most indifferent since the extension of the set described by the laws of subatomic activity is all physical events.

What is lost, of course, are the molar aspects of what we are subsuming, and the explanation of molar behavior in terms of subatomic particles, though precise, becomes both unsurveyable and impractical. The loss of molar features through precise explanation means there is a loss of seeing the world as a significant whole. Nothing stands out in the possibility space of subatomic particles save the behavior of those particles. The significance of an event, on the other hand, is embedded in the background of a whole, seen at a molar scale; only then can an event stand out. For Heidegger that whole is the relational totality of involvements, i.e., the world. To articulate the significance of an

event by showing how it stands out in the world is to explain it deictically.[72] But deictic explanation is, contrary to Heidegger's thesis, at least compatible with scientific explanation.

Science, as theoria, gives us a view of the world which is lawful. Within the nexus of laws any event may be explained. By determining the initial conditions and applying the relevant laws, an event may be predicted; given the event and the laws, we may retrodict the initial conditions. What is not entailed within the nomological explanation is either the request for the explanation or the relevancy of a particular explanation.[73] A scientific explanation illuminates an event in the nexus of laws. But even when the event to be explained has been identified somehow, many nomological chains may be traced through a concrete molar event. The explanation itself is not sufficient grounds for deciding if relevant laws are brought to bear on the explanation that relevancy must come from a concern which moves one to request an explanation, and it is that concern which becomes the grounds for deciding if any particular explanation is relevant. The articulation of a concern is given in deictic explanation: our response to the significance of an event may incite us to request a scientific explanation.

Given this view of science and scientific explanation and drawing on Bunge's work, we can see precisely the relation between science and technology.[74] Bunge distinguishes between a scientific law and a technological rule. Scientific laws describe a predicted event in the way we have seen above. The circumstances set the initial conditions for relevant laws. Technological rules, on the other hand, use scientific laws as prescriptions for obtaining desired results. If we wish to

procure a consequent, the technological rule prescribes our securing the antecedent conditions for that consequent. Bunge's general formulation for technological rules, then, is where A implies B, if we wish result B, then do A. Thus, if we want to rid ourselves of the conjestion of a head cold, we take a dosage of phenoproponolomine because we know that drug has anti-hystemic properties. The crucial contribution of science to technology is the theoretical grounding science gives to techniques. Scientific laws articulate a ground for action by showing the relation between antecedent and consequent conditions.

For Heidegger highlighting the relationship between antecedent and consequent conditions means ordering the real through the framework of technology. This ordering entails what Bunge calls technological forecast. Knowing that the real is ordered by the general formula if A then B, then one may secure B by securing A. Technological forecasting means manipulating present circumstances in order to obtain a future goal. This is done of course by securing and challenging the real, manipulating it such that it aligns itself with the antecedent conditions precipitating the desired consequent.

But here we must stop and reiterate that scientific laws do not entail a technological forecast. As I pointed out above, scientific laws do not entail, demand, or require the securing of antecedent conditions; they only explain the relation between antecedent and consequent conditions. Technological rules can only arise at the level of being directed by a prior concern--in the case of technological rules and forecasts, to secure a desired result. Mitcham places emphasis on technology as volition for precisely this reason; if scientific laws

are to be used as technological rules, then the impetus for their application must come from a desire to obtain a certain end. Heidegger is ambiguous on this point: both humans and being participate in the guidance of ordering by the framework of technology. Even though humans have freedom in regards to technology, Heidegger stresses the overwhelming influence being has on how we take up with the real. What is clear is that taking up with the real as a resource by attempting to secure antecedent conditions is 1) not a matter of discovering scientific laws, and 2) not entailed in the laws.

Thus we can make a principled distinction, as Bunge does, between scientific laws and explanation and technological rules and forecast, or as Agassi does between the need for corroboration in technological invention and the need for refutation and conjecture in scientific progress.[75] Scientific explanation places an event within a lawful nexus, but only at the request for an explanation. Such a request must come from a concern articulated in what we have called deictic explanation, except at the leading edge of physics where problems in need of explanation pose themselves. The progress of science here is measured by the power of a new hypothesis to explain "the refuted [i.e., former] hypothesis, as a special case and as a first approximation, plus the new [i.e., hitherto unexplained] fact."[76] The framework of technology carries out its ordering of the real by securing antecedent conditions on the basis of technological rules. Here the use of scientific laws is guided by the concern for obtaining a desired result and securing that result by securing its antecedent conditions.

Heidegger's view of science as derivative is complicated by the

fact that it may be construed in three ways: 1) science is objective and disinterested; 2) science is a matter of assuming a certain attitude; and 3) science distorts full-bodied reality. Science is objective, and as we have seen, disinterested in regards to what it analyzes. But this, it turns out, is really no criticism but, rather, a reaffirming of the fact that science needs external guidance in regards to the call for an explanation. Presumably we have called for a scientific explanation, and the precision of such an explanation sharpens the focus on a level of the world hitherto unnoticed. Chemistry tells me how and why the coffee boiled over in a way that is not immediately apparent. Thus I have learned something about my world which I would otherwise not have known. Heidegger would argue that so to gain insight is merely being diverted and fascinated by the world and not really being involved circumspectively. (This point, however, is ambiguous and will be dealt with later.) I only wish to point up here that I am not merely staring at the equipment within my purview by seeking such an explanation, nor am I diverting my attention away from my concern; I seek an explanation on the basis of a concern, and in the process come to realize how the world works. The simple fact that there is a loss of molar features does not mean there is a break with the concern which moved me to call for such an explanation in the first place. Granted, we usually do not call for scientific explanation just to learn about the world, but I believe this only emphasizes our technological propensity--we expect results to come out of our undertaking a scientific explanation.

Don Ihde points out that Heidegger loses this first sense of science as derivative as he develops his mature thought.[77] The mistake

Heidegger makes is assuming science to be an attitude which reduces full-bodied reality. As mentioned above, we may interpret "revealing" in Being and Time in a strong or weak sense. Science, as a theoretical attitude, tends toward the strong, but false, sense of disclosure. The implication is that we would see reality differently, i.e., in its full richness, if we were not seeing it through the theoretical attitude, that science sees a different reality than circumspective concern. Clearly this is not the case, for science, though objective, does not constitute or frame reality but describes it in its lawful workings. But as Heidegger's thought evolves and the objectivity of science drops out, the theoretical attitude is left ambiguous as to whether the attitude frames a certain kind of disclosure. In his mature works science is the child and the herald of technology. The ambiguity remains in the problem of human freedom and the extent to which technology frames the disclosure of reality.

It is the third sense of science as derivative which is most clearly identified as technology: science reduces and distorts full-bodied reality. In the mature works Heidegger points out that the ordering of the real by the framework suppresses any concern for significance; the real is challenged and taken up with in only one way--as resource. The significance of things is leveled and subdued because our involvement with them is only for obtaining a desired result. Science, as a reduction of significance, is strengthened as technology because technology not only reduces and levels significance but transforms the real, as resource, into a new kind of reality, viz. commodity. But the work of Bunge and Agassi clearly aims at the kind of confounding

Heidegger does here. Science, they show, is necessary to the ordering by the framework, but not sufficient.

It is technology which is derivative in that it deals with the real only as resource. The real is present-at-hand, to be secured. The referential context of the ready-to-hand is broken and reduced to 'being on call'; because our involvement is now only to secure antecedent conditions, we turn away from the rich references and assignments in the world and merely "stand beside" entities.

This is an important point, for most philosophers of phenomenological orientation assume Heidegger is correct in his assessment of science. Science is the derivative way modern man takes up with the real. But in fact they beat a straw man. Recognizing that science is a necessary ingredient for modern technology, it is perhaps the most tangible, and thus most certain, aspect of technology. So it is no wonder they attack science in venting their frustrations about a very co-opting adversary. But this move of theirs is itself a technological solution, and a mistaken one at that, for it tries to secure a solution (the reformation of technology). The move is misleading in that science gives us a (lawful) view of the world, and it is not clear why we should abandon such a view (save its relation with technology). By acknowledging that 1) science needs direction and guidance from deictic explanation, and that 2) we can distinguish scientific laws from technological rules, we need not abandon the scientific world view. The crucial question is how in fact we use scientific laws. Much effort is wasted in trying to

dismiss the cogency of science (a cogency which has overwhelming evidence in its support) when the real problem is, though more elusive, less difficult to challenge.

4. The Problem of Technology in Being and Time and the Reform of Technology in the Later Heidegger

The challenge to technology proves to be less difficult because the issue does not turn on cogency, rather on how one should involve one's self with the world. Implicitly Being and Time suggests how we might counter the privation of technology by attending to things. Significance draws together a referential context. Equipment points to that context and, thus, to significance. Consider, again, my spoke wrench. As a piece of equipment it fits the need of truing a wheel as well as pointing to when its use is needed, i.e., when I ride and notice an irritating wobble in the bike. In the background, then, stands the bike and my riding it. But more is circumscribed than simply riding my bicycle. There are the reasons for my riding. Some, to be sure, are utilitarian: this is how I tote my groceries home, get to work, and do errands. But it is in riding my bike that I also notice the change in seasons, the grade of a road, the chill and force of the wind; I feel the exhiliration of moving down the road on my own power. In short I participate and involve myself in the world. The world is disclosed in ways which are made accessible when I ride. A particular hill announces itself when my pedal rate decreases and pedal resistance increases. The wind shows its force when it slows me down or helps me along. Though these signficances may be "felt" in other ways, my involvement with them is focused and made possible through bicycling. The spoke wrench is also referred to in this context, though not explicitly. The

reference becomes explicit when I notice the vibration of a wheel is not only annoying but requires more effort to overcome, detracting from my enjoying the morning air and light as I roll along. Such a vibration calls for my involvement in the form of truing the wheel. Indeed, there is an unbroken context of engagement: the involvement of my ride refers to the care and maintenance of my bicycle; the nagging wobble of the wheel signals a need to true the wheel so that I may maximize my efforts when I meet the challenge of the hill or the wind. Such involvement contrasts with the involvement I have with technological devices. Adjusting a television set is needed when the color or tint does not truly represent flesh tones or the picture is out of tune. The explicit reference to adjustment comes in the context of my sitting, watching the screen, and the involvement amounts to my getting up from the chair and turning the appropriate dials. There is no skill as is the case in truing a wheel. Limited involvement, and a deprived setting for the involvement, there is.

The relation of my morning ride to work and the spoke wrench may be articulated when we recognize how the wrench relates to the bicycle and how the bicycle provides access to what stands out in the world. Such an explanation would be of the deictic kind. When someone asks me why I ride, I give just such a kind of explanation: there is a thrill at being able to move through the air under my own power, an exhileration at being alive; the smooth ride delivered by a well-tuned bike; the grade of a hill, the weather--these are all part of that experience. So the meaning of that spoke wrench carries not only the reference to trued wheels but also the experience of involving oneself with the

world by riding.

Heidegger shows us much more richly how significance is gathered when he explains deictically how things focus a world along the four dimensions of earth, sky, mortals, and divinities. His examples are of a jug and a bridge. The bridge spans water, drawing together two banks of earth, so that mortals may move to and fro across the water. This water is fed by the sky and a covering is made to give shelter to mortals against the rain. Mortals move from one bank to the other carrying out the daily task of attending the fields. The day-to-day tasks are done in the shadow of knowing that mortals are more than the clods of earth they plow, but one is also reminded that life is not wholly secure and there should be thanksgiving for what one has. Thus the divinities are drawn in also by the presence of a statue of a patron saint which reminds the mortals of that thanksgiving.

The fourfold comes to a focus in things and is articulated in the kind of explanation which draws together the background. In such focal things humans find their place. Mirrored in the gathering is the world in which humans participate. We recognize our mortality when comparing it to the silent earth and the divinity of the godhead. The importance of focal things comes forward when we recognize that such things remind us of our mortality by reflecting our relationship with the other dimensions. To be mortal, in one instance, is to live on earth, to gather the grapes sustained by the soil and nurtured by the rains; the wine made, is poured in libation and thanksgiving. It is in focal things that one may see reflected one's place in the world. Such reflection, if it is to orient us, must be articulated, and this articulation comes in

deictic explanation.

The real opposition is not between science and things, but rather between focal things and technology. Technology levels down significance by not allowing anything to stand out. Everything is seen only as resource, and one resource is as good as another so long as it secures the desired ends. By levelling significance we cannot orient ourselves within the world the way we can with focal things: there is nothing to reflect our place in the world because no place exists. Heidegger implicitly suggests we may counter technology by turning to focal things and involving ourselves with them. The suggestion is based on taking involvement with the ready-to-hand as the primordial way of being-in-the-world. Without such involvement the fourfold collapses and we no longer see ourselves in the mirror play.

But how does this suggestion get carried out? How and where may we act within the framework of technology? To answer these questions we must take a closer look at how technology establishes itself. More broadly, we are inquiring into the social setting for the responsibility (freedom) of technology as it is sketched in Being and Time. Here Dasein should turn from the inauthentic to the authentic self. As we shall see this move encompasses both human responsibility and a social setting, though in Being and Time it remains ambiguous. The ambiguity dissolves when we see the stand Heidegger makes in his later works. By looking at the later works through Being and Time the responsibility for technology, as well as its social setting, becomes clear.

5. The Social Setting of Technology in Being and Time

The existential analysis of Dasein shows that Dasein is, first and foremost, inauthentic. That is to say Dasein first becomes aware of itself and appropriates the world in terms that it accepts from others. Dasein discovers itself in the world with others and encounters them in the environment as those for whom work is done. Hence work implicitly carries with it the reference to others. The concern in regards to this referential structure Heidegger calls solicitude. Dasein knows itself against the background of the world and particularly in contrast to others:

> This being-with-one-another dissolves one's own Dasein completely into the kind of being of 'the Others', in such a way, indeed, that the Others, as distinguishable and explicit, vanish more and more. In this inconspicuousness and unascertainability, the real dictatorship of the "they" is unfolded. We take pleasure and enjoy ourselves as they take pleasure; we read, see, and judge about literature and art as they see and judge; likewise we shrink back from the 'great mass' as they shrink back; we find shocking what they find shocking. The "they," which is nothing definite, and which all are, though not as sum, prescribes the kind of being of everydayness.[78]

But the "dictatorship" of the "they" is not without its consolations. Dasein chooses to abdicate its responsibility for a decision, and thus the freedom to participate authentically in the world. The "they" does not dictate without Dasein's consent. In exchange for its abdication Dasein is accommodated.

> They "they" is there alongside everywhere, but in such a manner that it has always stolen away whenever Dasein presses for a decision. Yet because the "they" presents every judgment and decision as its own, it

> deprives the particular Dasein of its answerability. . . . It can be answerable for everything most easily, because it is not someone who needs to vouch for anything. It 'was' always the "they" who did it, and yet it can be said that it has been 'no one'. . . .
>
> Thus the particular Dasein in its everydayness is disburdened by the "they." Not only that; by thus disburdening it of its Being, the "they" accommodates Dasein if Dasein has any tendency to take things easily and make them easy. And because the "they" constantly accommodates the particular Dasein by disburdening it of its Being, the "they" retains and enhances its stubborn dominion.[79]

We see that the world of the "they" is tempting for Dasein because it disburdens Dasein of responsibility and provides Dasein with an articulation of significance: "When entities are encountered, Dasein's world frees them for a totality of involvements with which the "they" is familiar and within the limits which have been established with the "they's" averageness. What tempts Dasein to opt for the world of the "they" is the release from the uncertainty of seeking and appropriating in an authentic way one's own involvement in the world.

> Through the self-certainty and decidedness of the "they," it gets spread abroad increasingly that there is no need of authentic understanding or the state of mind that goes with it. The supposition of the "they" that one is leading and sustaining a full and genuine 'life', brings Dasein a tranquility, for which everything is 'in the best of order' and all doors are open.[80]

But how, if the "they" establishes a world and places Dasein in it, can the "they" hold a "dictatorship" over or rather entice Dasein? What does it mean for Dasein to give up its own being in the world? For answers we shall undertake a closer examination of the structure of the world of the "they" and how it anticipates the framework of technology.

When Dasein measures itself against the standards the "they"

articulates and establishes, Dasein is concerned with the distance between itself and others. This distance is closed by "leveling down" any difficulties or differences Dasein may encounter. The "they" accommodates Dasein by its concern with averageness.[81]

> In this averageness with which [the "they"] prescribes what can and may be ventured, it keeps watch over everything exceptional that thrusts itself to the fore. Every kind of priority gets noiselessly suppressed. Overnight everything that is primordial gets glossed over as something that has long been well known. Every thing gained by a struggle becomes just something to be manipulated.[82]

The glossing over and covering up allows everyone to have access to what is now familiar and commonplace, a familiarity which gives the appearance of being an intimate part of the world. Difficulties are brought close, not by "making them one's own," but rather by removing the referential context.

The "they," as it is in the world through averageness, shows itself in publicness. "In utilizing public means of transport and in making use of information services such as the newspaper, every Other is like the next."[83] In the public world, " . . . a covered railway platform takes account of bad weather; an installation for public lighting takes account of the darkness, or rather of specific changes in the presence or absence of daylight--the 'position of the sun.'"[84] A radio conquers remoteness by expanding the everyday environment such that it encompasses far away places, bringing them close.[85]

These examples of Heidegger's show the pattern of levelling down through accessibility and manipulation. A covered railway platform accommodates Dasein by manipulating the access to the world so that Dasein does not have to be bothered by rain or snow, or so that Dasein

may always see. The texture of changing nature as it is felt in a change of sky or the seasons is levelled down to the uniformity of dry pavement or adequate illumination. In order to reach out and draw closer remote parts of the world, as it is accomplished by news wire services, radio (and for us, satellite television), public accessibility to information is presented as a "common, everyday occurrence"; and, in fact, it is just that. The background and context of, say, a people's struggle with its government, is drawn into everyday public view. But the public view manipulates that struggle by removing it from its lived context and showing as an everyday occurrence. It is just that: the struggle appears in our everyday environment, not as a struggle of which we are apart, but as an occurrence.

When "every Other is like the next," the "they" becomes faceless. This levelling of other Dasein is best seen as the "public" in public opinion. Daniel J. Boorstin, in Democracy and its Discontents, verifies Heidegger's notion of the "they" when he recognizes the rise in power and prestige of public opinion.[86] Whereas opinion was at one time contrasted with knowledge and considered a substandard authority teetering on the brink of error, and with the rise of representational forms of government and the need to respond to those represented, the gathering of various individual preferences coalesced into "a much more potent single collective judgment."[87] When opinions congealed, opinion went under the heading "Public" and seemed much more respectable than any individual judgment.

Of course, for a democratic society like ours, "it is important, we are told, that our citizenry be "well informed." Our newspapers,

our radio programs, and our television are all crucial to our institutions because they keep citizens "well informed."[88] Information, however, is data, bits and pieces of "knowledge" without the cohesive and overarching structure which makes connections between those bits and pieces. Consequently, news--the dissemination of information for the purpose of keeping ourselves well informed--comes disjointed, each piece without connection to the next. And in the process of filling each vacuum with information, we overcommunicate:

> Not so long ago, a person had to make a special effort to get a message in from the world around him. For news he had to purchase a newspaper. For other information, he had to buy a book or attend a lecture, which was expensive, or find a traveler who might be scarce, or go to a theater, which performed only occasionally.
>
> Nowadays communication is an everywhere all-the-time thing. To escape messages we have to make a special effort--and we seldom succeed. Even when we come into our own living room we cannot avoid a glimpse of some far-off stage on the television screen being watched by someone else in the family.[89]

The ubiquity of information indicates a centralized system of dissemination. Boorstin cites advertising as the embodiment of this centralization.

> As expansion and novelty have become essential to our economy, advertising has played an ever larger role: in the settling of the continent, in the expansion of the economy, and in the building of an American standard of living. Advertising has expressed the optimism, the hyperbole, and the sense of community, the sense of reaching which has been so important a feature of our civilization.[90]
>
> If we consider democracy not just as a political system but as a set of institutions which do aim to make everything available to everybody it would not be an overstatement to describe advertising as the characteristic rhetoric of democracy.[91]

Advertising perpetuates and keeps alive our cultural ties, that sense of

optimism, of who we are and where we are going.

But there is an all too obvious shift here: peculiar expressions of who we are no longer " . . . sprout from the earth, from the village, from the farm, or even the neighborhood or the city. . . . They come from . . . networks of newspapers, radio, television. . . ."[92] The culture is no longer rooted in things close by, but rather in vague appeal to a heritage expressed in economic expansion and played out in the latest commodity designed to ease the burden of living. Advertising gives us this amorphous culture by showing us, everywhere, how the culture is to be lived out. If we work hard in the mountains, surely we would not drink a flatland beer; if we were smart we would not be caught dead with an ordinary oven; if we want the elegant look for our home, our flooring should take us there.

> Our kind of culture is here today and gone tomorrow--or the day after tomorrow. Or whenever the next semi-annual model appears. And insofar as folk culture becomes advertising and advertising becomes centralized, it becomes a way of depriving people of their opportunities for individual and small-community expression. Our technology and our economy and our democratic ideals have all helped make that possible.[93]

Now that we have obtained from Heidegger an outline of everyday existence, i.e., of the "they," and from Boorstin independent illustration and confirmation of this sort of existence, we turn to Heidegger's more detailed analysis of the "they." Boorstin shows us the influence of public opinion as it is exercised in advertising: it expresses the vision of what the public considers good (or bad) and the way the public discusses it. For Heidegger, these features of the "they" reflect a formal structure of Dasein's everyday existence. Falling, as the title

heading the structure of idle talk, curiosity and ambiguity, elaborates formally the averageness of the "they." Idle talk, as the discourse of the "they," is concerned not with Dasein's primordial relationship with significance, but rather with simply what is said. "What is said-in-the-talk gets understood; but what the talk is about is understood only proximally and superficially."[94]

> The primary relationship-of-Being towards the entity talked about is not 'imparted' by communication; but Being-with-one-another takes place in talking with one another and in concern with what is said in the talk. . . . And because this discoursing has lost its primary relationship-of-Being towards the entity talked about, or else has never achieved such a relationship, it does not communicate in such a way as to let this entity be appropriated in a primordial manner, but communicates rather by following the route of gossiping and passing the word along. What is said-in-the-talk as such spreads in wider circles and takes on an authoritative character.[95]

By accenting the expression of significance as opposed to involvement with it, Dasein subtly withdraws itself from the more fundamental ground of original disclosure. The difficulty, the context, the involved history of a disclosive or focal event, gets passed over and is taken as something that can be understood by everyone. This transpires because of the shift from the event and its context to simply "talking about it." Idle talk is groundless in that it is removed from the primordial relationship of being involved in the world. Because the disclosure of significance is perverted into an understanding of what is said, and not an understanding of the context of that significance, idle talk closes off any need to return to the ground of involvement.[96] Since Dasein is uninvolved in idle talk it "floats" unattached, being alongside the world in a privative manner. Without attachment, without a founding involvement

Dasein may move from one subject to the next unencumbered so as to pass itself off as genuinely understanding an event of significance.

Curiosity, as the sight of the "they" exemplifies this unattachment even more. Curiosity " . . . is not confined to seeing, but expresses the tendency towards a preculiar way of letting the world be encountered by us in perception."[97] That peculiar way, of course, is depriving our purview of the world of any circumspective concern. Dasein is concerned only with the world in the possible ways it looks. "Seeing possibilities in the world" arises from the truncation of any circumspective involvement.

> In this kind of seeing, that which is an issue for care does not lie in grasping something and being knowingly in truth; it lies rather in its possibilities of abandoning itself to the world. . . . Consequently it does not seek the leisure of tarrying observantly, but rather seeks restlessness and the excitement of continual novelty and changing encounters. In not tarrying, curiosity is concerned with the constant possibility of distraction.[98]

Dasein moves from one possibility to the next, since there is no concern which lays claim to it. Thus, "curiosity is everywhere and nowhere."[99] There is no sustaining attention: Dasein is free to move from novelty to novelty. But this remains privative since genuine, grounded involvement provides a place for Dasein (though the world of the "they" provides a 'life' for Dasein). The free movement passes itself off as opening all doors.

This, then, leads to the third modification of falling, that of ambiguity.

> When, in our everyday Being-with-one-another, we encounter the sort of thing which is accessible to everyone, and about which anyone can say anything, it

> soon becomes impossible to decide what is disclosed in genuine understanding, and what is not.[100]

The ambiguity stems from an exposure, through curiosity, to everything and a lack of (authentic) understanding of anything since the primordial ground of involvement is closed off in idle talk. With the distinctive character of things levelled down, the context provides no support for demarking what is genuine and what is not: everything becomes passed off as genuine.

Dasein "falls" into the world in the sense of being absorbed in the world characterized by idle talk, curiosity, and ambiguity. "This 'absorbtion in . . . ' has mostly the character of being lost in the publicness of the 'they'."[101] Falling into the public world of the "they" means, ipso facto, Dasein loses contact with the world of involvement. Dasein is tempted to fall into the public world because of the self-confident decisions the "they" articulates: the "they" provides a pretext for leading a full and genuine life. Dasein acquires a tranquility in adopting this pretext, disburdened not only of responsibility, but also of struggle. At the same time, Dasein is alienated from the possibility of authentic involvement in the world. Dasein plunges further and further into the groundless supposition that the 'they' " ossesses everything, or that everything is within its reach."[102]

For all of the richness of Being and Time, Heidegger does not indicate how the disburdenment is executed. The "they" provides a pretext for living, and Heidegger suggests that through participation in the public world, the reading of newspapers for example, one gains access to that pretext. But Heidegger does not show in Being and Time

how such participation closes off involvement. To be sure, genuine disclosure is passed over when things are made easily available; the question is how are things made readily available, or easy, in the public world. The "they" provides tranquility by disburdening; but it is not clear precisely how the disburdenment is carried out.

The levelling down and passing over of genuine disclosure is a finding obtained from Heidegger's foundational approach. The world of the "they" is privative vis-a-vis the unbroken richness of concernful circumspection. Heidegger abandons this foundational approach and moves on to discuss the framework of technology and focal things; this allows us to identify the privation of the present-at-hand and the severing of involvement with the framework of technology. In this way the analysis of the framework shows how disburdenment is executed.

But we must recognize that Heidegger's analysis of the framework remains one-sided. For it does not account for the attractiveness of technology. Man accepts technology, indeed is partner with it, yet Heidegger gives no explicit answer as to why humans accept what the framework has to offer. He describes the framework as if it were an extension of human imperialism: the airliner stands on the runway "on call for duty," ensuring the possibility of transportation by being ready for take-off.[103] But he believes technology is more than just an instrument by which humans procure what they desire; technology influences the way humans take up with reality. The difficulty here is that Heidegger wants to maintain that technology holds sway, but does not totally dominate man, nor does man totally dominate technology. Consequently, Heidegger must strike a balance between technology's influence and the

attractiveness it has for man. The latter is not dealt with in the analysis of the framework. The description of the airliner suggests that the attractiveness of technology lies in technology as the effective means for procuring power, but the suggestion is only tonal, and Heidegger makes no expansive remarks along this line. He wants to maintain a certain amount of freedom between human beings and the framework. In order to do so Heidegger uses the term "holding sway" suggesting that the framework influences humans; but humans also go along with the framework. Freedom can only be sustained if humans accept, in total responsibility, what the framework has to offer. On the other hand, we must avoid thinking of technology as a mere instrument; such freedom in acceptance, then, must somehow be tempered. The subtle balance here is upset by Heidegger's forceful attempt to show the closing off accomplished by the framework. Such language does not adequately answer, but does confuse, the issue of how the framework maintains its sway.

6. The Mutual Illumination of Social Being and Technology

The key to the proper perspective lies in the "they": the attractiveness of technology lies in our intoxication with disburdenment and distraction. The structure and analysis of the "they" elaborates and complements the manipulation of the framework so that, seen through each other, the flavor of technological living becomes perspicuous. The confluence of the early and mature works answers the difficulties encountered in the respective works. The framework shows us how the "they" accomplishes its goals; the analysis of the "they" sheds light on the question why we accept the singular revelation of technology.

First, the ordering of the framework is itself a closing off. Recall that the great danger of technology is that the ordering and securing of resources, as the only mode of disclosure, remains veiled and disguised. Within the framework the real is disclosed as resource. Reality is challenged, manipulated into the order; thus secured, the disclosive and focal power of a thing is constricted. What is drawn together within the framework is only the available resources. The world becomes wholly and essentially technological.

Why then do we opt for the singular revelation of technology? Through securing of resources we are accommodated by technology since the framework, in its ordering, makes those resources available to us.

> The coal that has been hauled out in some mining district has not been supplied in order that it may simply be present somewhere or other. It is

> stockpiled; that is, it is on call ready to deliver the sun's warmth that is stored. The sun's warmth is challenged forth for its heat, which in turn is ordered to deliver steam whose pressure turns the wheels that keep a factory running.[104]

Or, closer to home, the steam turbines at the coal-fired generating plant, producing electricity to heat our homes and run our televisions, vacuum cleaners, and blenders. The access to these resources disburdens us by making use of such household items available. It is not that each of these items taken individually exemplifies the framework of technology; rather they bespeak a way of life and thus highlight the pattern exhibited by that way of life. What is crucial is the extent which the pattern of disburdenment becomes one of distraction and disengagement.[105]

Consider the commonplace and everyday convenience of driving a car to run errands, or for that matter to visit friends or travel to new places. The car covers distances relatively quickly in at least moderate comfort. One has only to sit behind a wheel in order to gain elevations of several thousand feet or travel several hundred miles; the pain of sore muscles and aching joints is nil save the discomfort of sitting for long periods of time. If we need only to travel cross town to purchase groceries, there generally is no discomfort. We are spared a hike of several miles with cumbersome sacks of groceries; the car makes getting groceries and seeing that our children are to their piano lessons or soccer practice easy. Instead of hiking to a favorite vista, we can drive to watch the sunset; instead of risking several months' journey to visit our relatives across the continent we can be there in a few days' travel. Either are available by car. The only qualitative differences between how easy these various points are available to us lies in the

distances that need to be covered and the time and money at our disposal. But these differences are superficial since the limitations are not an integral part of the highway system, but only incidental to our peculiar circumstance.

In fact, if there is a road that goes somewhere, we could get there. Thus various locations in town, in the state, or on the continent are available to us because of a network of roads and superhighways which make them accessible. The interstate highway system accommodates our need (or desire) to visit relatives or a national park by connecting us with distant cities or scenic areas. Gas stations, restaurants, and motels provide "accommodations": the oil trapped beneath the earth's surface is extracted, distilled, and provided in consumable form at various points along our route so that there is little danger of our running out of gas; fruits and vegetables, meat and bread, drawn from various parts of the continent, are made available when we become hungry and pull into the next restaurant; a motel procures all the comforts of home when it is time to retire for the evening. Such a network accommodates our habits of eating and blurs the differences of night and day. Cars, themselves, protect us from the weather. One can travel in snow or rain and sunroofs provide access to the warmth and radiance of fine weather.

A contrast with walking or cross-country bicycle riding makes perspicuous the ease and comfort of a car. Walking to get groceries is physically demanding and requires large amounts of time. Since we are limited by the amount we can carry, frequent trips are required to accomplish the hauling of a carload of groceries. This places more

demand on our time as well as endurance. We may disperse the inconvenience of having to spend a day walking back and forth to the store by making a habit of shopping each day. But in exchange for this we lose the freedom of scheduling our day. With a car the task of shopping is confined to one trip thus making room on the other days of the week for other activities. A car trip across the country reduces the time of travel also. Biking across the continent would take weeks and would demand tremendous amounts of work.

But technology remains ambiguous. Since all of reality is equally available as resource, and since the framework closes off any disclosure other than the ordering of the real as resource, within the framework, one cannot distinguish between curious distractions and involvement with focal things. As I mentioned earlier, riding my bicycle opens a world for me. A cross-country bike trip recovers the physical demands lost in driving a car. It challenges my endurance and exposes me to the changes and texture of the world. Having gained time by driving a car, it is not clear whether this benefits me vis-a-vis the exposure I have to the world when riding my bicycle. To be sure, resources have been procured for needed and wholesome benefits. Medical resources provide health and vitality; books, and now computers, put knowledge at our fingertips. But the same framework of technology that extends the length of life through vaccination and check-up techniques also allows us to fill our time with video games and our stomachs with junk food. In the latter case, it is dubious if I am challenged to extend and improve myself; what is clear is that video games and fast food eateries limit the context of my participation.

The framework is "tempting" in that what it provides is a tranquil distraction. Video games, which surpass their mechanical kin--pinball machines--dazzle the eye with flashing lights and fast moving scenes. The scenes are as vivid as an adventure movie holding our attention, keeping us on edge with unexpected moves of the contenders. Only our curiosity is taxed; the games utilize limited skill and are easily accessible. "We can have it our way" by simply stopping at the nearest fast food restaurant. What makes eating this way so easy is the fact that these restaurants are, more or less, uniformly and ubiquitously located; as are gas stations, motels, and video games. We can repeat our cross country trip with any itinerary. Any store provides the same or comparable brand products or food. We can walk into most homes in this country and expect to find a comfortably maintained temperature. If we do not, we regard the instance as unusual and out of the ordinary. In short, the framework provides accessibility with relative equality and homogeneity within the framework. Any difference is provided for distraction. This can be accomplished because resources of energy and raw materials that are secured and channeled stand in the background.

So, the question of accountability naturally arises: who asked for this framework? Thinkers of Ellul's persuasion maintain that technology asserted itself, but as we saw earlier this position remains inconclusive. Instrumentalists, such as de Jouvenel, say we have instituted the framework and remain in complete control of it as a means for achieving certain ends.[106] This too remains superficial, for as Heidegger points out the framework holds sway over us. What we are asking here is who is responsible for the framework. Being and Time

says we are. So long as we maintain a public attitude towards technology, we freely give up accountability. The "they" deprives Dasein of its answerability. Technology is there because of public demand; but what is public demand except our giving up control (and accountability) over what and how much we genuinely need. The standards are set by the public: comfortable living means 2.3 children, a dog, and two cars. We abdicate control when we accept, unquestioningly, the easily provided products and the kind of life that surrounds them. We give up control when we accept the distractions of curiosity and foresake a rich involvement with the world.

Yet technology is ambiguous; it does provide us with both durable bicycle frames and video games. This ambiguity sharpens the question of responsibility: clearly not all the benefits of technology should be abandoned. But if the framework itself is ambiguous we must look outside it for criteria to guide us. Returning to Being and Time let us examine the criteria Heidegger sets for the resolution of this ambiguity and the acquisition of responsibility.

7. The Responsibility for Technology

One takes on the responsibility of one's own involvement in the world by moving to authenticity. The self of everyday Dasein Heidegger calls the "they-self" which is inauthentic insofar as it takes up with the world in idle talk, curiosity, and ambiguity.[107] In other words, an inauthentic self passes over the primordial disclosure of the world in favor of significance articulated by the "they." The authentic self, as the contrast to the inauthentic, is a modification of the inauthentic.[108]

> If Dasein discovers the world in its own way and brings it close, if it discloses to itself its own authentic Being, then this discovery of the 'world' and this disclosure of Dasein are always accomplished as a clearing of concealments and obscurities, as a breaking up of the disguises with which Dasein bars its own way.[109]

The move to authenticity is accomplished by 1) recognizing that we are the "they," that we first appropriate our world by public standards, and 2) realizing that we have a choice in accepting this appropriation.

> When Dasein thus brings itself back from the "they," the they-self is modified . . . so that it becomes authentic being-oneself. This must be accomplished by making up for not choosing. But "making up" for not choosing signifies choosing to make this choice--deciding for a potentiality-for-being.[110]

Dasein understands the significance of the world in terms of a prior sight and concern. The world is disclosed in terms of the "for-sake-of-which" when Dasein finds itself within the context of involvements.[111] "Understanding is the existential being of Dasein's own potential-for-being; and it is so in such a way that this being discloses in itself what its

being is capable of."[112] In choosing to be authentic, then, Dasein must move away from the possibilities set forth by the "they" and recognize one's own capacity for involvement.

The possibility of authentic existence is attested by "the voice of conscience" as a call.[113] The call is to move away from the world of the "they." It rises above the chatter of idle talk by silently reminding Dasein of the choices it has not made.[114] "The appeal to the they-self signifies summoning one's ownmost self to its potential-for-Being, and of course as Dasein--that is, as concernful Being-in-the world and Being with others."[115] Authentic existence harkens back to the more fundamental, i.e., foundational, mode of being involved with the world. The voice of conscience signifies that Dasein has opted for the privative possibilities of the "they" instead of concernful involvement. In this way, the call of conscience counters Dasein falling into the lostness of the "they."

In recognizing that it has opted for certain possibilities, Dasein also recognizes that it has excluded others. The call of conscience points up the fact that Dasein has, ipso facto, failed to realize certain possibilities--namely authentic ones. The failure to realize these possiblities Heidegger calls Guilt.[116] Guilt signifies not having carried out possibilities, and Dasein recognizes, in the call of conscience, that it is not authentic insofar as it accords with possibilities articulated by the "they." But to acknowledge being lost in the world of the they is to acknowledge that the "they" tempts with the tranquillity of having provided Dasein with possibilities. In Guilt, Dasein not only recognizes the temptation of becoming lost in the public

world, but why the world of the "they" is tempting in the first place: the "they" provides a place for Dasein since it recognizes the uncanniness of simply being thrown into the world.[117] Conscience calls Dasein back to being in the world, where Dasein must recognize of what it is capable despite the intractable givenness of the world.

When Dasein understands the call of conscience authentically, it understands the call as an appeal to come back to the world so that it can appropriate possibilities which fall within and highlight its capacities. "Hearing the appeal correctly is thus tantamount to having an understanding of oneself in one's own most potentiality-for-being" which, based on Guilt, is not appropriating the possibilities articulated by the "they."[118] Dasein shows resolve when it opts for those possibilities based on Guilt, when Dasein opts to move into the uncanniness of being thrown into the world.

8. The Ambiguity of an Authentic Counterposition to Technology and Its Resolution

Heidegger does not delineate the appropriation of one's own most potentiality for being in terms of the foundational relation of involvement with the world, though this would seem plausible to do, since the falling of Dasein is falling away from circumspective concern. When we ask what Dasein is resolved for, we find that it is resolved only for its own most capacity (potential) for being, based on Guilt. But if Dasein is lost in the world of the "they" and cannot distinguish genuine involvement with equipment from being alongside it, then Dasein has no clue as to what would be an authentic capacity for being. This difficulty points to a larger ambiguity in Being and Time.

It is recognized that the program of Being and Time from the beginning is a divided task; the failure of the foundational approach arises from a fundamental inconsistency of the program.[119] Heidegger seeks the concrete meaning of being as he tries to move beyond the metaphysical analysis of being. To accomplish this Heidegger singles out human beings, Dasein as a being with special access to being, and proceeds to analyze under what conditions Dasein has this special access. The contradiction is that the analysis is itself transcendental, that is to say, by only analyzing the antecedent conditions, the possibility for access to being is procured, but it fails to substantiate consequential matters on the basis of possibility. Such a critique, however, says little in regards to Heidegger's philosophy of technology; it remains

merely formal. As we have seen earlier, Heidegger's description of Dasein is not, in fact, universal but most accurately describes technological humankind. A closer examination is needed to discern how the division in Being and Time bears on Heidegger's philosophy of technology.

If Heidegger's analysis secures the antecedent conditions of Dasein's possibility, then it must do so for both the authentic and inauthentic self. Heidegger does secure both; the difficulty is that Heidegger wants to reject on the concrete, substantive level the inauthentic involvement of the "they" as manifest in technological living, but cannot because a transcendental analysis will determine indifferently without evaluation all fundamental possibilities of human existence. Indeed, Heidegger, though he sets off the work world of the craftsman against technological devices such as the radio, is not consistent with his examples. "Any work with which one concerns oneself is ready-to-hand not only in the domestic world of the workshop but also in the public world."[120] Consequently technological exploitation is indistinguishable from the usefulness of tools in the craftsman's workshop. "The wood is a forest of timber, the mountain a quarry of rock; the river is water-power, the wind is wind 'in the sails'."[121] Heidegger retracts in "The Question Concerning Technology" the idea that such public disclosure as resource could be the same as the disclosure of a focal thing.[122]

But how does the tension between technological ordering of resources and the disclosure of significance resolve the ambiguity of the "they"? To be sure, the "they" embodies technological living and hence is inauthentic. Authentic living is marked by resolve for one's own capacity for being. But Being and Time, consistent with its

transcendental approach gives no concrete indication as to what this might be. The difference between technological ordering and a focal thing pivots on the unbroken context of significance articulated by that thing. Indeed, the involvement with a focal thing discloses a world which is vastly different from the tranquil distraction of technology. If a focal thing sets itself off against technology then a capacity for response to such things becomes the criterion for authentic living. Heidegger resolves the ambiguity of the "they," and ultimately the tension between securing antecedent conditions and those consequential matters of concern, by looking to things in their disclosive significance.

The primordial disclosure lies in a thing's focal power: the fourfold is disclosed through a particular thing; significance is gathered and focused. This disclosure is not secured in that one may not always have access to the depth of the world when one involves oneself with a thing. I am not guaranteed an exhilerating ride when I get on my bicycle even though I have had such experiences in the past. Indeed, a particular ride may prove to be agony. I may be riding into a strong headwind; the physical exertion required to ride increases and I am all too unpleasantly aware that this ride is not fun, not enjoyable, but simply a lot of work--work I am not enthused about doing. It contrasts with other rides where wind and weather have shown themselves as exhilerating challenges. What is not secured is knowing in advance how the world will be disclosed, or the guarantee that the disclosure will be fruitful and illuminating. There are occasionally dark moments in our involvement with focal things. Nonetheless, I do know that my

bicycle affords me the opportunity for an exhilerating experience of using my muscles even though I am not in control of those experiences. Within the framework of technology, however, that control is secured: resources are channeled so that, on command, the environment for a pleasant experience is available. In the comfort and security of an arcade, video games supply distractive delight. One only has to supply the quarters to be captivated by a game of "Pac-Man." The extent to which one is carried away depends, of course, on our prior disposition, but enough distraction will mitigate any depression or anxiety so long as we give ourselves over to whatever we allow to capture our attention. In the arcade the means of distraction is secured: there is no outside intervention save the buzz and bleeps of others involved in other games. This, too, may be eliminated: video games, as well as full length movies, may be played in the privacy of one's home.

We can see more perspicuously that the criterion of authenticity lies in focal things when we concentrate on recognizing potentiality for being as a capacity, a capacity for human dignity. "This dignity lies in keeping watch over the unconcealment--and with it, from the first, the concealment--of all coming to presence on this earth."[123] This dignity is guarding the disclosure, not forsaking its ground simply because the ground does not always reveal. Authenticity, then, means being ready, being open for the disclosure which comes in focal things. If we opt for the security of the framework of technology, if we give ourselves over to the dictates of the "they," then the disclosive ground, the focus of significance in a thing is levelled over with and by available distraction. By seeking the security of always being disburdened, by

filling our time with technological distraction, we give up on involving ourselves with the significance of the world. Capacity is making room for and being sensitive to the significance by developing a patient attention to things. Within this patient attention lies our human dignity, for the patience awaits, and thus guards, the significance of the world. By learning how to tune properly and adjust my bicycle, by attending to which gear ratio has the least amount of pedal resistance on a particular hill, by sharing the workload with another biker through lead changes and drafting, a strong headwind becomes a challenge, not an obstacle. The resistance demands that I utilize my skill and acquaintance with my bike if I am to be effective, efficient, and elegant in riding. But I must have already developed the capacity to utilize skill for executing the proper movements in response to the challenge given to me by the headwind.

The significance of that challenge does not leave me even as I true my wheels, for here I am preparing for and anticipating it even though I do not know when it calls on me. The unbroken context of involvement embodies the capacity as a making room for significance. Within the framework of technology the capacity for significance shrinks as involvement with devices narrows and withdraws. In the context of tuning a television set, involvement is narrowed to my turning knobs to eliminate annoying distortions, and withdraws altogether in the case of self adjusting sets. The capacity for significance is reduced to passively sitting in front of the screen. If, however, the scope of my involvement is expanded the space created for utilizing skill, the capacity for significance, need not always be filled, and in fact cannot

be. All rides may not be exhilerating and joyous; my ride on the road to work may not be particularly striking, but rather uneventful or even agonizing. Still I should not neglect the care of my bike, for even the uneventfulness of the ride opens me to the fact that significance and grandeur is not within my control, that I must wait and be prepared for it.

The call of conscience, then, as a formal structure illustrates how we may take responsibility for technology and at the same time resolves the difficulty of freedom in Heidegger's mature works. "Unless man first establishes himself before hand in the space proper to his essence and there takes up his dwelling, he will not be capable of anything essential within the destining now holding sway."[124] The call of conscience is the call to make up for the lack of choice when one abdicates one's choices to the public world. Such a "choice" passes over the development of capacity and sensitivity to focal things, a capacity which is proper to the highest dignity befitting a human being.

We first appropriate the world in terms of the "they," since we are born into the "they." Such acculturation is really no choice at all but our starting point in choosing how we may appropriate the world. We make a choice against the background of the "they" and the challenging of technology.[125] But the choice is not simply against the framework but rather one that allows focal things to orient us.

Heidegger articulates the disclosure of significance along the dimensions of the fourfold--earth, sky, mortals, and the divinities. We as mortals find ourselves within the disclosure because the dimension of being mortal is mirrored in each of the other dimensions, within the

focus of the fourfold as a whole. Humans are under sky, on earth, looking toward the divinities. But the fourfold also shows within the mirrorplay, the focus and gathering of the world, what calls us to be in the place opened up within the dimensions. When we choose to make room for focal things through patient attention, we guide ourselves by the direction provided by a thing and place ourselves within the area opened up. The man who tends the vineyard knows his mortality in terms of the grapes, the soil, the sun and rain, and the libations offered in thanks; he knows what his daily tasks are through that attention, and he knows the meaning of his life in terms of his mortality and those daily tasks.

The choice, then, is both to take responsibility for technology, i.e., make it our own, and to come to terms with our dignity that is our essence.

> However, in order that man in his essence may become attentive to the essence of technology and in order that there may be founded an essential relationship between technology and man in respect to their essence, modern man must first and above all find his way back into the full breadth of the space proper to his essence.[126]

By coming out of the "they" we recognize technology for what it is: the framework secures resources to make them available and orders the real such that it discloses itself only as resource. In the separation from the "they" and the subsequent coming into our own we become sensitive to and allow for other modes of disclosure. This separation comes in choosing whether one should opt for the disburdenment of technology, and this choice means taking responsibility for when and where we allow technology to come into our lives.

In choosing to take our orientation from focal things we dissolve

the ambiguity of technology and in so doing determine which antecedent conditions should be secured, what disburdenment is proper to the attention to focal things and would not interfere with their disclosure. To be sure, technology disburdens us so that one may have the opportunity to tune a bicycle or prepare a festive meal, but in contrast the opportunity is squandered when we turn to video games and fast food. If we opt for the latter and choose the disclosure of reality as resource for our distraction, then we allow the framework to guide us. In effect we choose to neglect things and we must accept the consequences. Taking responsibility for technology means accepting the disburdenment but on terms we have appropriated as our own, i.e., to the service of attention to other things and their revelations. The problem is, as Heidegger points out, that there are always possibilities (and significances) one fails to act on and ipso facto must neglect in order to act on others. But one must act toward, respond to, something in order to be responsible.

Simply to opt for video games and microwaves is not to take responsibility at all. To accept wholeheartedly the distraction of technology is abdication. In this case one has not appropriated the world as one's own, but instead adopts what kind of life is available and vivified in advertisement. The movement out of the "they" means responding to something on one's own terms, and not lapse into the comfort of a pretext that is conveniently available. Response means opening ourselves to what a thing reveals and acting according to what is appropriate to that disclosure. Being sensitive to current and a particular set of rapids, a boatman deftly positions the boat, enters the rapids, pushes hard on the oars at the crests of swells, slips off the sides of

rocks to avoid the boils on the other side.[127] If one wanted to be pleasantly distracted, one could avoid challenging rapids or ride the aqua coaster at an amusement park. Technology, in its debilitating form, "responds," not with skill but levels down the skill needed, so that significance becomes just so titillating.

But technology may help open up a world for us. Lighter bicycle frames and components challenge one to ride harder and faster; lighter kayaks make maneuvering easier thus making available rapids which require the skill of agile maneuvering . Video games, on the other hand, only develop eye-hand coordination. The difference between the two worlds should be more than obvious. A game of "Pac-Man" limits us to viewing a fluorescent screen in a black box; running a river or riding a bicycle opens us to a fuller world: there is the feel of cold water, the smell of fresh air, the full use of one's body, the surrounding trees and rocks under which, and on top of, one can lay in rest. Taking responsibility for technology means making room within one's life for significance based on such focal things.

We move to choose individually on those occasions when we decide to take our cue from focal things. Such occasions seem endless: on a windy day I can choose to ride my bike with skill or to drive the car to work; I can fill my time by dropping quarters into video games or I can read the classics; I can always have music through a good stereo unit or I could purchase a musical instrument and learn to play it. On those individual occasions for decision, the choice manifests itself as a choice between responding with skill and knowledge or opting for easy availability. Granted, not everyone should or can be a guitarist or poet or

commuter by bicycle, but to eliminate all possibilities of challenge through technological availability runs against the grain of human dignity, of being open and responsive to significance. As individuals we respond to significance in different ways according to our individual make-up. Being responsible means that we appropriate focal things on the basis of our personal capacities.

Yet not all of our actions are individualistic: we do move and act collectively as a community. The questions of responsibility for technology enter into the forums where decisions about community life arise. As a community we decide on the quality of education for ourselves and our children, of our immediate surroundings, of the kind of work we seek and endorse. The choices are decided in various political forums: local,state, and national elections, referendums, lobbying our representatives. The questions about whether we wish to expand the framework of technology in our collective lives pose themselves when the framework affects us all: the question of nuclear arms, the question of a continental pipeline are forums within which we discuss what kind of life we wish to lead. But the questions need not be so global; the same question of responsibility arises when we need to discuss and choose what kind of industry we want to settle in our area or whether we want large public transportation such as an airport.[128]

We take responsibility for technology, also, when we decide on how we should celebrate, communally, the things which we all share in common--clean air and water, open spaces and wild rivers, and our identity as a community and species. The choice is to acknowledge and honor these things in their own right or eliminate what they reflect by allowing

the framework to establish and provide what we should share in common.

By reading Heidegger's mature works through Being and Time we fill out the austere (and sometimes pessimistic) picture Heidegger portrays. In doing so we also gain an understanding of the counterbalance to technology which is more applicable to our own lives, for it is the day-to-day world in which we live and encounter the framework of technology. Technology disburdens us and provides distractions when we use the toaster and shower in the morning, drive the car to the shopping mall to do our errands, call friends on the telephone for an afternoon conversation, or put dinner in the microwave and sit down for an evening of relaxation in front of the television set. Such every day encounters are what is most insidious; they are so close to us that we barely recognize them for what they are--a severance from involvement. We are too used to seeing the framework of technology as imposing, as embodied in the Vehicle Assembly Building at Cape Canaveral, Hewlett-Packard calculators, "CAT" scanners, or the skyline of downtown Chicago. But we can, and usually do, insulate ourselves from such towering examples of technology. We do this by retreating back into the framework through purchased travel packages or a movie played on a home video cassette recorder. Yet we do not see the retreat as part of the framework itself. Such day-to-day encounters appear to be harmless, even helpful, distractions from the severance from things or debilitating labor.

9. Working out the Appropriation of Technology

How, then, can we reconcile the openness to focal things with our inevitable reliance on technology? Heidegger suggests that

> we can use technical devices, and yet with proper use also keep ourselves free of them, that we may let go of them any time. We can use technical devices as they ought to be used, and also let them alone as something which does not affect our inner and real core. We can affirm the unavoidable use of technical devices, and also deny them the right to dominate us, and so to warp, confuse and lay waste our nature.
>
> . . . I would call this comportment toward technology which expresses "yes" and at the same time "no" by an old word, releasement toward things.[129]

For Heidegger the counterforce to the framework is a "releasement towards things" exemplified in the work world of the craftsman; it is in this environment that things are encountered ready-to-hand, i.e., in their full, involved contextual richness. For us this kind of work epitomizes the counterforce to the framework in focal things and the practices which surround them. It embodies the confluence of the mature Heidegger's notion of a focal thing and dwelling in the world, as well as Being and Time's rich everydayness. This confluence shows us to the focal thing there belongs the human response of a practice.

The workworld of the craftsman embodies Heidegger's notion being-in-the-world in that it exemplifies an environment where the ready-to-hand is close-by.[130] It is through concernful circumspection that one judges whether entities are within reach, close-by, or far away.

> The Objective distances of Things present-at-hand do not coincide with the remoteness or closeness of what is ready-to-hand within the world. Though we may know these

> distances exactly, this knowledge still remains blind; it does not have the function of discovering the environment circumspectively and bringing it close by; this knowledge is used only in and for a concernful Being which does not measure stretches--a Being towards the world that 'matters' to one.[131]

Concernful circumspection understands the ready-to-hand as close or remote in terms of how the ready-to-hand reveals itself.

One summer I had the opportunity to watch and help a craftsman at his trade. From this experience of working in a tinshop I came to an understanding of how tools are used in work and how in that use a world is disclosed along with the orientation it provided in that world. The measurement of a corner on a steeple means more to the tinsmith than so many inches from this notch and so many from that piece of wrought iron. The tinsmith is interested in capping the steeple and the dimensions are made with the foresight of this concern, anticipating problems and intricacies. The top of the tower is not perfectly square, so the perimeter of the cap will have to be adjusted so that it looks squared off. The seam of the cap would look best if it were on an edge, so the smith must decide which direction the edge will least likely be seen. Consequently the direction of that edge determines what measurements the sides of the base will be. Then there are the adjustments to be made for the various notches and protrusions at the top of the tower. And while the smith looks over these problems, he considers how the cap will be attached. The various rivets and fasteners at his shop, or the creation of a custom anchor come to mind. Though he stands on the roof of a country church at a crossroads miles from his shop, his circumspective concern draws together both the tools and the skills he will need to complete

the task. The tower, as ready-to-hand, orients him as to what must be considered: the measurements for the cap mean nothing unless he has given thought as to what the cap is for, where it should sit on the tower, and how it should be assembled. Only against and in conjunction with the background of this significance does "three feet four-and-three quarter inches on the southwest edge" make sense.

But let us not forget that this measurement always carries reference to the rest of his considerations. It will take the smith the morning to cut and mark the sheet of copper from which he will make the cap. The morning for him is not eight to twelve; time is not measured by the clock, rather by the estimation based on his past work.[132] He begins by setting the shop in order, gathering his tools, clearing the workbench, selecting the materials. He has no sheet large enough to make a one-piece cap, but there are two sheets each sufficiently large to make half. This the smith had not anticipated. The lack of material for his initial plan dictates the alternative of making a two-piece cap. He thinks back to the steeple and how such a cap would look. A pinched seam would work best, giving symmetry to the cap. He then decides to make false seams on the other two edges creating complete symmetry about the cap.

He lays down the first sheet deciding which two directions these two faces will look. He turns to his measurements then begins to lay out the lines. For this task the smith scratches the lines with an awl and straight edge. He deftly marks first the far edge of the cap then a line half an inch parallel to that; then one nine-sixteenths from the last, then one nine-sixteenths further out. This last line is a

reference line: the seam will end here and the smith must move so far over at the base before he can start the next seam. When it comes time to break, to bend the sheet at the various lines, the smith starts at this reference line, moves to the first line nine-sixteenths from it, and breaks the sheet up, i.e., bends it to a near right angle, folding the lines together. The next break will be nine-sixteenths away on the line second from the edge. The resulting creases will look like a "G" (or an upside down "G" depending on which end you are at). The "Gs" from each half are slipped one inside the other, then pinched to keep them from spreading apart. But before he can break the sheet, all the lines must be marked. From the line which will be the edge, he marks off the base, for it is from here that the length of the rest of the edges will be determined. The cap must look square, the height of the cap is fixed, so the edges must reach to the corners of the base as well as account for the pitch of the top of the tower. At each measurement the smith stops and ponders, visualizing how the cap will sit.

With both sheets marked the smith cuts the edges of the cap. He gently slides the bottom of the sheers underneath the metal, the scrap always on the right hand side. He squeezes firmly, evenly, almost to the edge but not closing down all the way. The morning has turned to early afternoon and he returns home for a bite to eat. When the meal is finished he chats with his wife for a while, asking how her day is progressing. The smith pauses, reminded of his work, and departs for the shop.

There he begins to break the sheets. A break is a tool which holds sheet metal between two leaves, one stationary, one lifting up so

as to create an opening which holds the sheet in place when the leaf is dropped again. A third leaf, placed on a pivot, is pulled up and around, folding the secured sheet of metal. The smith places the sheet in the break and aligns it surely and swiftly. His motions are smooth, honed by years of practice. The crease is exactly where he wants it. He moves to the next break, then to the next. When all the breaks are made the halves are fitted together and must now be pounded on the anvil. The anvil will not reach to the very point of the cap, so he must cantilever on his bench a long bar, rotated so that the corner of the bar is perpendicular to the floor. The seam rests on the bar creating a sharp angle against which the smith pinches the seam and pounds a corner. First he taps flat the expanded "Gs," then returns to the top, pounding down the seam, returning again striking with harder blows. Such a seam must be shaped and worked with each strike. Towards the bottom he can transfer his work to a long, slender-nosed anvil.

The cap is seamed together and the day is almost done. The smith tidies the shop, putting away his make-shift anvil, and gathers the tools he will need for the morrow. With this done and time to spare, he turns to smaller projects, ones he does during the moments between larger jobs.

The next day the smith solders the inside of each seam and fills the tip. He cleans the copper surface by brushing it with acid. The soldering iron is heated in a small stove until the head is red hot, then slowly runs it along the seam. Behind the iron he feeds the solder and flux, melting it by touching the hot sheet and not the iron. With the sheet hot, the solder melts and flows into the crack; if the smith melted it only on the iron, the fluid would cool before it had a chance

to penetrate the seam. The process is slow: the iron must be constantly cleaned and reheated. The smith must move the solder only "so far" from the iron so that the surfaces are hot enough to melt the solder but the iron and solder are not in contact. The process is most difficult near the top of the cap where there is little room to work.

In the afternoon the smith is ready to place the cap on the tower. For this he has enlisted the help of a neighbor. The two men hoist the cap onto the roof, then set it on the tower to see how it fits. With only minor trimming the cap sets snuggly, and the two men climb down to see if it appears to be plumb. Satisfied that it is, the smith marks the holes for the rivets. The neighbor holds the cap over a bar placed on the inside of an edge as an anvil while the smith punches the holes using a punch and hammer. When the holes are bored the men return the cap to the top of the tower. The neighbor must now "buck" the rivets. Holding a piece of iron shaped like one used to press clothes (but definitely more massive), this man pushes against the flange of the rivet. The flange is on the inside of the tower, the head passing through the wrought iron frame at the top of the tower, through the copper cap and protruding far enough for the smith to point down and round out the head. The man on the inside must push the iron tight against the flange, providing backing so that the smith can have a solid blow on the rivet. When the riveting is done, the smith solders the corners of the base and cleans up. The day is finished, and he and his neighbor return home, the smith ready to turn to a new job, a new task.

In such a work world we can see that the smith's involvement with his tools provides seamless reference to the purpose of the job and its

context, a cap for the steeple of a country church, other tools and the materials available. Though one or more aspects of his work fade into the background, they move forward when what called his attention is answered. The type of seam was called into question when the smith found he had to work with two separate sheets of metal instead of one; but he did not lose contact with his tools when this happened. Once he responded to the material at hand and decided that it called for such and such a style seam, he understood what tools were needed for that task. The entire job only makes sense in terms of the tower on that particular church at those crossroads. The measurements and his choosing which side should face what direction attest to that.

But more so, such work orients the tinsmith's day-to-day life: the measurement of daily time is in terms of the work at hand. His involvement, centered on the tools of his trade, comes in the form of practicing skill. Practice, not simply in the sense of acquiring skill, but also in the sense of a repetitive involvement with those tools. The smith is involved in the practice of cutting, breaking, and soldering material; in the practice of making caps, or chests, or custom pieces for stoves. His practice of skills opens him up to involvement with the things ready-to-hand in the workshop. Others, too, are not left out. The smith considers the view the parishioners will have of the steeple when he ponders how to set the cap. He asks the pastor out of what material would he like the cap to be made, and barters with him about the work to be done. He calls on his neighbor for help, and enjoys the quiet break at midday with his wife.

10. Dwelling as the Counterforce to Technology

Still we must remember that such a world cannot be delimited strictly in Being and Time, for Heidegger here cannot distinguish the authentic from the inauthentic. Such a distinction only comes, in consequential form, in his mature works. The confluence of the richness of such a world with the mature Heidegger's definitive embrace of things fills out and illustrates that kind of life which is the counterforce to technology. The title of such a life may be found in dwelling.

Let me begin by elaborating dwelling in the world in terms of authenticity. As we have noted, authenticity means a resolve for one's own capacity for the world: human dignity is found in keeping watch over an area which we remember as having disclosed to us in the past the significance of the world. Such authenticity is marked by waiting for significance, not forsaking the ground which reveals it by giving ourselves over to the distraction of technology. We must open ourselves to significance by attending to those things which we have found to focus that significance. Such attention is indicative of preservation: significance does not always show itself when we want or expect it.[133] Good runs are not always guaranteed whenever we set foot to ground. We must wait; we must be ready for it. But we can only be ready in a space we have provided and preserved for our involvement. Since significance is focused in things, as Heidegger describes them, then we must keep them safe, for it is in our involvement with focal things which is our being open to significance. We must not forsake and abandon them when

they "do not deliver," but remember that it is through them that the significance of the world shows itself, and that part of our involvement, as attention, means we must wait for it. The vigor of a good run, the greeting of fresh smells of earth rising in the air, and the songs of morning birds come when we run, but they do not always meet us. Still, if we are to enjoy such a glimpse of the beauty of the world, we must continue to run, even though the run the next day is labored, for it is in running that we gain access to this significance. What practice shows us is that we overcome lapses in the disclosure of significance through regularity and commitment. But continuing to practice our involvement with focal things, we preserve the ground which reveals the significance of the world. But a practice also reveals something about our relationship to significance. Because the greatness of the world is not under our control, we need a practice; for in a practice we accept significance as greater than ourselves and respond to it with humility, i.e., we respond to it as something to be cherished.

Heidegger only hints at practice as human involvement which leaves room for the greatness of the world, yet all the elements are there. The thrust of Heidegger's counter to technology lies in releasement towards, rather than neglect of, things. He shows us the focal power of things but never explicitly suggests ways to preserve them; his mature works point to the breadth of preservation, yet this lacks an everyday expression; Being and Time emphasizes involvement in an unbroken context of significance and everydayness, but the import of this is lost in the ambiguity of the book. A focal practice, I believe, as involvement surrounding a thing which discloses the significance of the world, brings

into relief the emphasis of involvement while at the same time it points to the breadth of preservation.

In broader terms, Heidegger describes this preservation as dwelling.

> Real sparing is something positive and takes place when we leave something beforehand in its own nature, when we return it specifically to its being, when we "free" it in the real sense of the word into a preserve of peace. To dwell, to be set a peace, means to remain at peace within the free, the preserve, the freesphere that safeguards each thing in its nature. The fundamental character of dwelling is this sparing and preserving. It pervades dwelling in its whole range. That range reveals itself to us as soon as we reflect that human being consists in dwelling and, indeed, dwelling in the sense of the stay of mortals on the earth.[134]

The smith preserves when he accepts that certain gauges of metal behave in certain ways and they must be handled each in its own way. Copper cuts differently from galvanized steel; each demands its own way of sheering. The smith preserves this difference when he uses the lighter snips for the copper instead of cutting either sheet with a band saw. He also preserves when, on days when things go wrong, he continues to handle the material in the same ways he has before, rather than overcoming the difficulties with technological force. Such preservation is taking responsibility for technology in choosing to remain with one's skills even when they temporarily fail him. Instead of folding over the edge and spot welding it to the side, he continues and attempts to finish the intricate crimped seam of the lid to a tool chest.

But as Heidegger indicates, preservation and setting free pervades swelling in its whole range.

> The old word bauen to which the bin belongs, answers: ich bin du bist means, I dwell, you dwell. The way in which you are and I am, the manner in which we are humans on this earth, is Bauen, dwelling. To be a human being means to be aon earth as a mortal. It means to dwell.[135]

Dwelling, then, is not just preservation of practices; dwelling ranges over the dimensions of the fourfold. We may only dwell, we may only preserve, in terms of "being on earth." The "stay of the mortals" indicates the range of our dwelling on earth in that earth points to the sky, and mortals await the divinities. The range of dwelling already moves within the world in the dimensions of the fourfold; to say "being on earth as mortal" carries with it the unspoken dimensions of being under sky looking towards the divinities. Reminiscent of Being and Time, we are in-the-world (emphasized by its hyphenation); we move within the world inhabiting the fourfold.

> Still, how is it that we move within these dimensions?
>
> How do mortals make their dwelling such a preserving? Mortals would never be capable of it if dwelling were merely a staying under the sky, before the divinities among mortals. Rather, dwelling itself is always a staying with things. . . .
>
> . . . Dwelling preserves the fourfold by bringing the presencing of the fourfold into things. But things themselves secure the fourfold only when they themselves as things are let be in their presencing.[136]

This securing is not the securing of resources by the framework of technology, but the preservation of the fourfold focused in a thing. Things disclose the dimensions of the world when they are allowed to be. The awl is to etch the sheets of metal and can only be put to that use when we recognize that the pointed tip scratches the surface. To free the awl means that in conjunction with the recognition we use it for precisely

that purpose. The awl of course refers to the work being done by the tinsmith and in this way draws near the fourfold.

Mortals stay with things, allow the fourfold to be disclosed in things when mortals build. "Dwelling, insofar as it keeps or secures the fourfold in things is, as this keeping, a building."[137] Heidegger's preservation is not a blind and sterile museum curatorship; things are not "put away," but neither is it the storage of resources. Dwelling carries with it the active participation first cited in Being and Time: building is the making of things which install and admit, focus and disclose, the fourfold, the dimensions of the world wherein we dwell.[138] Such building is markedly different from the construction and expansion carried out by technology. The difference shows itself in the thing, for things gather and focus the world, technological devices disburden and distract us.

In Being and Time "letting an entity be involved . . . consists in previously freeing it for its readiness-to-hand within the environment."[139] Such freedom is for serviceability, usability to which the entity as equipment is suited. The awl is suited for marking the surface of metal. But the involvement and subsequent "letting be" of a thing in Heidegger's mature thought is without the ambiguities which beset Being and Time. Building means, emphatically, staying ("being") with things.

The bridge, which we have mentioned before, serves as an example for Heidegger. It gathers the fourfold: it spans the rift in the earth crossing over the water fed by the sky; mortals travel to and from the banks to do their tasks in thanksgiving to the divinities.

> To be sure, the bridge is a thing of its own kind; for it gathers the fourfold in such a way that it allows a site for it. But only something that is itself a location can make space for a site. The location is not already there before the bridge is. Before the bridge stands, there are of course many spots along the stream that can be occupied by something. One of them proves to be a location, and does so because of the bridge. Thus the bridge does not first come to a location to stand in it; rather a location comes into existence only by virtue of the bridge. The bridge is a thing; it gathers the fourfold, but in such a way that it allows a site for the fourfold. By this site are determined the localities and ways by which a space is provided for.[140]

Allowing a site means focusing the fourfold: the world is concretely gathered and disclosed in that place where the bridge spans from bank to bank. It is here when the bridge vaults into the sky, that the sky's significance is brought forward. The bridge contrasts with the sky by moving into it, by moving across the stream fed by the rains.[141] One dimension does not stand alone; it mirrors the others, too. It connects the earth for mortals to do their work in thanksgiving. The location of the bridge is the disclosed site of the world; the location is the place where earth and sky, divinities and mortals meet.

In the same way the smith, along with the closeness of his work world, moves about the location of the church. The cap sheds the rain of the sky. That is why it has been commissioned by the minister. The cap is for the church, and the divinities stand in the background when the smith thinks of the parishioners, when he decides which facet of the cap will face where, for the people gather in the church to sing and pray in thanksgiving for the sun and rain which feeds the soil.

Mortals move within the space provided by the thing. Heidegger does not mean space to be relations of mathematical constructions.

Reminiscent of Being and Time, mathematical space has no place, no horizon, but is merely the measure of extension.[142] (Again, as we have noted earlier, Heidegger has not abandoned his criticisms of science as privative; but as we have seen, it is not the exhaustive analysis of measurement given by Cartesian mapping which is detrimental; it is replacing location oriented by things with technological objects which make life easy that is the detriment.) Rather,

> a space is something that has been made room for, something that is cleared and free, namely within a boundary. Greek peras. A boundary is not that at which something stops but, as the Greeks recognized, the boundary is that from which something begins its presencing. That is why the concept is that of horismos, that is, the horizon the boundary. Space is in essence that for which room has been made, that which is let into its bounds.[143]

The room within the horizon is where man dwells. A horizon sets the limits whereby we find meaning of those things gathered in that space. The farmhouse in the Black Forest mirrors the horizon of living a life of farming in that place, the Black Forest. The house is built on the lee slope for protection from the winds; the slope of the roof sheds the winter weight of snow. It is built near a spring to provide water for the everyday chores of washing and drinking. " . . . In this way it designed for the different generations under one roof the character of their journey through time. A craft which, itself sprung from dwelling, still uses tools and frames as things built the farmhouse."[144] Such a farmhouse can only be understood of its location and who that location creates a space wherein a family dwells, wherein they live out their lives in terms of, and in conjunction with, that place.

So too, it is with the smith who moves within the space centered

on the country church and the room of his work world. The two conjoin when he undertakes the building of a cap for the steeple. The church sites a place where a community gathers for prayer, but also for the celebrations and festivities scattered throughout the summer. Those festivities occur within the horizon of farming on the plains of the midwest; the Saturday dances and picnics reflect both a life of farming in that area and a celebration of that life. The smith is not unaware of this space for he knows the importance and significance of the church. He responds to this space and the things within it not as just another job, but as one which needs special considerations, such as craftsmanship. Those considerations, like why a certain facet of the cap must face a certain way, do not leave him when he moves within the environment of his workshop, the space of his work world. Those considerations make reference to the skills he will need to execute the building of the cap; the use of tools refers back to the steeple and its significance.

By contrast a technological device eliminates horizons, since within the framework resources are at one's disposal--the sense of the world which is revealed is only that of resource. Robert Socolow illustrates this point in the description of an office building:

> The downtown office building of the 1960s already stands as a metaphor for the whole society's desire for independence from the natural setting: temperature, humidity, air exchange, and lighting are all controlled mechanically, independent of season, wind speed or whether one is on the north or south side of the building. Neither materials nor design change as the location is moved in latitude by thousands of miles. (In physicists' jargon, the building is invariant under ninety-degree rotations, displacements in space, and translations in time.)[145]

The lack of horizon, then, is twofold: the framework presents all resources as equal in the form of commodity, and as a commodity, the world

as resource, cannot reflect a greater richness. An office building is but one building where one can work, but it may be replaced equally by any other building regardless of design or materials with only allowances for convenient location. All buildings are equally accessible to us: if we need only to drive from home to work the direction we go is of little consequence. If a building, such as a home, were to orient us, then an office invariant in regards to displacements in space would not aid us in that orientation, since the structure does not reflect any acknowledgement of the world.[146]

With all commodities given as equal, no horizon exists since one commodity can be exchanged for another. No history may accrue in terms of a thing; by interchanging one device for another we no longer "stay" with one thing allowing a space to grow around it. Our relations with cars serve as a good example. Until recently Americans assumed that we should trade in the old car every year or two for a newer, flashier model. But with those cars which last longer, people acquire a sense of history and reluctantly and sadly let them go.[147] Still, we sell off the car when it shows signs of wear, when it rattles and pings just a little too much. So instead of attending to its adjustment, we opt for the disburdenment the framework has to offer and get a new one.

Building, then, is making things, and so is our entrance into the space which reflects the fourfold.

> Building puts up locations that make space and a site for the fourfold. From the simple oneness in which earth and sky, divinities and mortals belong together, building receives the directive for its erecting of locations. Building takes over from the fourfold the standard for all the traversing and measuring of the spaces that in each case are provided for by the locations that have been founded. The edifices guard

> the fourfold. They are things that in their own way preserve the fourfold. To preserve the fourfold, to save the earth, to receive the sky, to await the divinities, to escort mortals--this fourfold preserving is the simple nature, the presencing, of dwelling. In this way, then, do genuine buildings give form to dwelling in its presencing and house this presence.[148]

Mortals participate in the preservation of the world, of the fourfold, by involving themselves in the building of things. We must remember that this building, as involvement, is broader and deeper than the construction of a house or an office. Building makes room for the fourfold by putting up a location, and we participate in the fourfold in terms of that location. To dwell means to make room for focal things by involving ourselves with them. We make this room by receiving from the thing the guidance and direction we need to carry out our involvement. Responding to a thing requires not just the cues given by things for our guidance, but also attention to the origin of the cues and the responses they evoke. We set the cornerstone of a church based on the size and layout of the church and the way the kind of stone which we are using for the cornerstone lays. Upon reflection we see that this building is not isolated but lies within and reflects our awaiting the divinities, that it creates a site, on earth, under sky, where mortals gather to celebrate their life.

Such reflection Heidegger calls thinking. Thinking embodies the concern for and response to things of the world as they disclose themselves in their significance, for our relationship with such things is mysterious, not in the sense of amorphous, but in that the significance they herald and embody is greater than ourselves and yet we are yet allowed to participate in it.

> Releasement towards things and openness to the mystery belong together. They grant us the possibility of dwelling in the world in a totally different way. They promise us a new ground and foundation upon which we can stand and endure in the world of technology without being imperiled by it.[149]

It is in thought that we remember our past relations with things and the significance they reveal to us.

> . . . The essential nature of thinking is determined by what there is to be thought about: the presence of what is present, the Being of beings. Thinking is thinking only when it recalls in thought the ἐόν, that which this word indicates properly and truly, that is, unspoken and tacitly.[150]

When involved with a thing we recall that thing and its gathering of the fourfold as it has come to us before. It is through this thing that we recall past significance, and against this seek the meaning of what is present before us. A climb to the summit on a warm breezy day recalls the trauma of an ascent in a storm, my partner and I making strenuous and concentrated effort to make all the right moves. The significance of this climb, the test of our skills, the reliance on each other's strengths, trust in ourselves and each other, comes into relief when seen through the fluid climb on the sunny day. The joy of such an ascent is reinforced by our experience of the previous attempt. But even deeper, such thinking is thanking, for in the recollection of our past experiences we realize our mortality--we are ones who are alive, who collect experiences and are able to witness the ebb and flow of the world, grateful for both our openness to significance and its gracing presence.

So, releasement towards things, involvement with them, and thinking belong together.

> The two, however, are also insufficient for dwelling so long as each busies itself with its own affairs in separation instead of listening to one another. They are able to listen if both--building and thinking--belong to dwelling, if they remain within their limits and realize that the one as much as the other comes from the workshop of long experience and incessant practice.[151]

It is within the bounds of a practice that we learn what things have to offer and where the intricacies of a thing show itself. Coming back to the same thing in practice is the space wherein we gather experiences from memory and reflect on how the world shows itself, giving thanks for its presence.

It is in the practice of his craft that the tinsmith learns the meaning of his world. Reflected in his practice is not just the use of tools and the peculiarities of a single sheet of metal as he works with it; he lives out his life in that practice and regularity. He knows that it is there he finds companionship with his wife and the neighbor whom he calls on for help; and it is in terms of the accomplishments he has made that he shares with those around him the joy of his work and skill. The smith dwells in the world through his involvement as skills exhibited in practice. It is only within the room which shelters his practice that the smith can ask meaningful questions about life. His building gives form to the location of the fourfold, and it is against the fourfold that questions about life, as he dwells in the world, may arise.

11. Conclusion

What, then, can we learn from Heidegger in regards to the elusiveness of technology? He shows us that there are hazards within the framework of technology, namely that the neglect of things carries with it the neglect of the significance of the world and our capacity to respond to that significance, and ultimately the eclipse of our capacity. The framework disburdens us by making commodities available, but it also provides for distraction by making available devices to fill our lives. Thus our responsibility for technology comes when we choose, on individual occasions or in community action, to limit the entry of the disburdenment of technology into our lives. What hangs in the balance is our commitment to the significance of the world disclosed in things, and it is those things which should guide us in our decisions. Our unease with technology lies in technology's welcomed disburdenment and simultaneous displacement of those things which call on our capacities to respond as full human beings and enrich our lives.

The turn to things resolves for Heidegger and us this ambiguity. Focal things reveal significance and guide us in the space we have called practice. Practice allows us access to the significance of the world through involvement. The involvement points to our relation with the world through an unbroken reference to significance and carries with it the historical depth of coming back to the involvement again and again in practice, witnessing the changes in disclosure and recalling them in memory.

The work world of the tinsmith is, of course, but one example of a space wherein one may involve oneself with a thing. The farmhouse, the bridge, the country church are also narrow in this sense, and perhaps somewhat stylized. But there are some crucial features which may be extracted from these examples. First, the life lived out in the space provided by a focal thing is lived out day-to-day in the repetitive practice surrounding those things. Practice returns us to that space where we encounter the significance disclosed by a thing. The crucial distinctions between the framework of technology and this space are a) significance is not secured and must be awaited, and b) we do not in practice forsake that space when significance does not appear. Second, there is depth involvement both in our recollection and memory of past disclosures and in our contact with others and their historical past. Third, it is in everydayness that there is continuity with the world. Movement within the space is not disjointed but fluid insofar as involvement with a thing, the smith's awl or shears for example, refer to the unbroken context of work. The continuity of going from a round of "Pac-Man" to a night club is tenuous at best: true we may do all this in one night but the only reference to continuity these events have is that they are events which distract us and keep us occupied. Fourth, the space centered around a thing extends along the dimensions of the fourfold and reflects the depth of the world along those dimensions.

There are many things in this world and many practices in which we may preserve them. The bike I have ridden for so many miles creates a space through which I engage the wind and meet the hill. The history which the bike carries reiterates all the miles, all the aches, all the

exhileration every time I set out again. As Heidegger notes, there is more: the deer we meet on our walks, the earthen mug we drink from; the tools we use, the instruments we play; all these are things for each makes room for the world and the mirrorplay of the fourfold. Things are usually simple, inconspicuous, close by.

But amongst all the things of the world and the practices in which we can involve ourselves, to which do we commit ourselves? The choice, of course, is not arbitrarily determining what will count as a significant thing. We respond to various, but kindred, things around us which within their own right come forward to claim us. Our choice lies in which things we respond to and to what extent we respond to their call. Again the choice is both individual and collective, and along these parameters. I believe the confluence of Being and Time with Heidegger's mature thought has some strong suggestions. On the personal level we should respond with the capacities we have. We should engage ourselves in those activites which both reveal significance and involve us as full human beings. To limit our human dignity engenders a false sense of who we are, and a repeated failure to disclose significance breeds bitterness. Most strongly, however, the confluence suggests a richness that should be relevant in both individual and communal decisions. That is, we should look to those practices and activities which bring us in contact with the other, with the world and with the history which surrounds and resonates in one's place in the world. The farmhouse is the site where a family lives through its history; the steeple's cap draws together the sphere of the fourfold guarded in the church, and the space of a

craftsman's work world. Both reflect the dimensions of the world and yet both express those dimensions uniquely. If reading Heidegger's mature works through Being and Time tells us anything, it is that his vision of life in a technological world puts technological devices in their proper place and seeks a life of involvement with the world through things which carry historical and focal depth, which guide our lives, and bring us together with others as mortals.

Notes

[1]Paul T. Durbin, "Introduction," Research in Philosophy and Technology, vol. 1, ed. Paul T. Durbin and Carl Mitcham (Greenwich, Conn., 1978), pp. 1-6.

[2]Ibid., pp. 6-10; also Carl Mitcham and Robert Mackey, "Introduction: Technology as a Philosophical Problem," in Philosophy and Technology, ed. Mitcham and Mackey (New York, 1972), pp. 1-30.

[3]For a general list see Carl Mitcham and Jim Grote, "Philosophy of Technology," in Encyclopedia of Bioethics, ed. Warren T. Reich (New York, 1978), pp. 1638-43.

[4]See Mitcham's "Philosophy of Technology" in A Guide to the Culture of Science, Technology and Medicine, ed. Paul T. Durbin (New York, 1980), pp. 282-363.

[5]Ibid, p. 298.

[6]In many instances the technology that spawns the environmental crisis may be juxtaposed with the beneficial aspects of that same technology. Hence it is unclear, at the level of concern, what the problem really is. See Samuel C. Florman, "In Praise of Technology," Harper's Magazine, CCLI, no. 1506 (November, 1975), pp. 53-72.

[7]Ibid.

[8]See W. Norris Clarke, "Reflections on the XVth World Congress of Philosophy," International Philosophical Quarterly, XIV (1974), 117.

[9]See Nicholas Rescher's summary of sociological data regarding people's perceptions of technology in Unpopular Essays on Technological Progress (Pittsburgh, 1980), pp. 3-22.

[10]Alvin Toffler, Future Shock (New York, 1970).

[11]Carl Mitcham, "Types of Technology," in Research in Philosophy and Technology, pp. 229-94.

[12]Ibid., p. 231.

[13]Ibid.

[14]The chapter "Philosophy of Technology," in A Guide to the Culture of Science, Technology and Medicine, is a comprehensive review of pertinent literature in terms of the typology outlined in "Types of Technology," (cf. note 11).

[15]Mitcham, "Types of Technology," p. 233.

[16]Ibid., pp. 233, 234.

[17]Ibid., pp. 258-60 for succinct discussion of the need for a concept of volition in technology.

[18]Henryk Skolimowski, "The Structure of Thinking in Technology," Technology and Culture, VII, no. 3 (Summer 1966), pp. 371-83.

[19]Mitcham, "Types of Technology," pp. 258-60.

[20]Cf. Mitcham, "Types of Technology."

[21]Mitcham, "Philosophy of Technology," p. 308.

[22]Jacques Ellul, The Technological Society, tr. John Wilkinson (New York, 1964).

[23]Mitcham, "Philosophy of Technology," p. 309.

[24]Ibid., pp. 310-11.

[25]Ibid., pp. 314-16.

[26]Langdon Winner points out such debilitating features of reductionism and eclectic explanation as well as offering a steady basis of his own. See Autonomous Technology (Cambridge, Mass., 1977), pp. 178-87.

[27]Cf. Durbin, "Introduction," Research in Philosophy and Technology.

[28]Cf. note 17.

[29]Cf. Mitcham, "Philosophy of Technology," p. 321, for a small bibliography of the "Heideggerian" perspective.

[30]William Lovitt, "Heidegger's Perspective on What is Happening Today: Techne and Technology," Philosophy Today, Spring 1980, 62-72.

[31]Don Ihde, Technics and Praxis (Hingham, Mass., 1979).

[32]Martin Heidegger, The Question Concerning Technology and Other Essays, tr. William Lovitt (New York, 1977).

[33]Martin Heidegger, "The Question Concerning Technology," in The Question Concerning Technology and Other Essays, p. 14.

[34]Ibid., p. 15.

[35]Ibid., p. 17.

[36]Ibid., p. 16.

[37]Ibid., p. 18.

[38]Ibid., p. 19.

[39]Ibid., p. 23. Lovitt translates Ge-stell as Enframing; I will refer to his translation of this word in direct quotations but otherwise will refer to it as the framework of technology.

[40]Ibid., p. 24.

[41]Ibid., p. 25.

[42]Ibid.

[43]Ibid., pp. 31, 33.

[44]Ibid., p. 27.

[45]Heidegger, "The Turning," The Question Concerning Technology, p. 37; author's emphasis.

[46]Heidegger, "The Question Concerning Technology," p. 32.

[47]Heidegger, "The Turning," p. 45.

[48]Ibid., p. 48.

[49]Cf. "The Thing" in Poetry, Language, Thought, tr. Albert Hofstadter (New York, 1971), pp. 163-86.

[50]Martin Heidegger, Being and Time, tr. John Macquarrie and Edward Robinson (New York, 1962), p. 19. All pagination will refer to the English text. Again, I shall depart from the convention and not use 'Being' except in passages quoted from Macquarrie and Robinson's edition. All emphasis will be Heidegger's unless otherwise indicated.

[51]Ibid., p. 31.

[52]Ibid., p. 30.

[53]Ibid., p. 32.

[54]Ibid., p. 33.

[55]Ibid., pp. 97, 98.

[56]Ibid., p. 105.

[57]Ibid., p. 97.

[58]Ibid., pp. 102-3.

[59]Ibid., p. 119.

[60]Ibid., p. 189.

[61]Ibid., p. 177.

[62]Ibid., p. 68.

[63]Ibid., p. 87.

[64]Ibid., p. 250.

[65]Ibid., p. 89.

[66]Ibid., p. 414.

[67]Ibid., p. 413.

[68]Ibid., p. 135ff. Kent C. Bloomer and Charles W. Moore give an independent confirmation to this distinction in their Body, Memory, and Architecture (New Haven, 1977).

[69]Heidegger, Being and Time, p. 147.

[70]Douglas R. Hofstadter, in Gödel, Escher, Bach (New York, 1979), discusses the nature of formal systems and their relation to our everyday experience.

[71]On the surface tachyons, particles that travel faster than the speed of light, would pose a problem. However, the tachyon universe is,

theoretically, the mirror image of our own, thus the speed of light is a slowest limit where a decrease in speed shows an increase in mass. Finally, there is no evidence to show tachyon interaction.

[72]Albert Borgmann, "Explanation of Technology," in Research in Philosophy and Technology.

[73]The case of explaining human behavior is rather interesting. An event is shown lawful by way of scientific explanation; but what about a request, as an event of human behavior, for a scientific explanation? That, too, may be explained scientifically, but the event to be subsumed is different from the original event. For reflections on the lawfulness of human behavior see Hofstadter's Gödel, Escher, Bach. For limits on scientific explanation see Carl Hempel's Aspects of Scientific Explanation (New York, 1965), pp. 334, 351, and 361.

[74]See Mario Bunge's "Toward a Philosophy of Technology" in Philosophy and Technology, pp. 62-76.

[75]See Joseph Agassi, "The Confusion between Science and Technology in Standard Philosophies of Science," Technology and Culture, pp. 348-66.

[76]Ibid., p. 360.

[77]Ihde, pp. 127-28.

[78]Heidegger, Being and Time, p. 164.

[79]Ibid., p. 165.

[80]Ibid., p. 222.

[81]Cf. ibid., p. 163ff. for the discussion of distantiality, leveling down, and averageness.

[82]Ibid., p. 165.

[83]Ibid., p. 164.

[84]Ibid., p. 100.

[85]Ibid., p. 140.

[86]Daniel S. Boorstin, Democracy and Its Discontents (New York, 1971).

[87]Ibid. p. 15.

[88]Ibid., p. 20.

[89]Ibid., p. 8.

[90]Ibid., p. 28.

[91]Ibid.

[92]Ibid., p. 40.

[93]Ibid., p. 42.

[94]Heidegger, Being and Time, p. 212.

[95]Ibid.

[96]Ibid., p. 213.

[97]Ibid., p. 214.

[98]Ibid., p. 216.

[99]Ibid., p. 217.

[100]Ibid.

[101]Ibid., p. 220.

[102]Ibid., p. 223.

[103]Heidegger, "Question Concerning Technology," p. 17.

[104]Ibid. p. 15.

[105]Cf. Borgmann's "Explanation of Technology"; Staffan B. Linder makes a similar distinction between the constructive and decadent phases of technology. Cf. his The Harried Leisure Class (New York, 1970).

[106]Bertrand de Jouvenel, "Technology as Means," in Values and the Future, eds. Kurt Baier and Nicholas Rescher (New York, 1969), pp. 217-32.

[107]Heidegger, Being and Time, p. 220.

[108]Ibid., pp. 168, 312.

[109]Ibid., p. 167.

[110]Ibid., p. 313.

[111]Ibid., p. 182.

[112]Ibid., p. 184.

[113]Ibid., p. 313.

[114]Ibid.

[115]Ibid., p. 325.

[116]Ibid., p. 328.

[117]Ibid., p. 333.

[118]Ibid.

[119]Cf. Otto Pöggeler, "Metaphysics and the Topology of Being in Heidegger," in Heidegger: The Man and the Thinker, ed. Thomas Sheehan (Chicago, 1981), pp. 173-85.

[120]Heidegger, Being and Time, p. 100.

[121]Ibid.

[122]Cf. Heidegger, "The Question Concerning Technology," pp. 14-16.

[123]Ibid., p. 32.

[124]Heidegger, "The Turning," pp. 39-40.

[125]Heidegger, Being and Time, p. 334.

[126]Heidegger, "The Turning," p. 39.

[127]Henry Bugbee describes the skill and attention a boatman used in guiding a power boat over rapids, pointing out that skill is not limited to low technological devices. See his Inward Morning (State College, Pa., 1958), pp. 81-84.

[128]Such was the case in Toronto. Cf. Jerome Milch "The Toronto Airport Controversy," in Controversy: Politics of Technical Decisions, ed. Dorothy Nelkin (Beverly Hills, Cal., 1979), pp. 25-47.

[129]Martin Heidegger, "Memorial Address," in Discourse on Thinking, tr. John M. Anderson and E. Hans Freund (New York, 1966), p. 54.

[130]Cf. Heidegger, Being and Time, p. 138ff. for his discussion of the closeness of entities within the world.

[131]Ibid., p. 141.

[132]Ibid., p. 140.

[133]Bugbee gives insightful reflection into the preservation of significance throughout The Inward Morning. In particular see pp. 41-54 and 62-74.

[134]Martin Heidegger, "Building, Dwelling, Thinking," in Poetry, Language, Thought, p. 149.

[135]Ibid., p. 147.

[136]Ibid., p. 151.

[137]Ibid.

[138]Ibid., 158.

[139]Heidegger, Being and Time, p. 117.

[140]Ibid., p. 154.

[141]Heidegger elaborates the contrast when he speaks of the world thrusting out of the earth. The tension between the two highlights each other's nature. Cf. "The Origin of the Work of Art" in Poetry, Language, Thought. Here 'world' is used generically, a compression of the four-fold in things; earth in this essay is itself as we see it in the four-fold though Heidegger ascribes to it other characteristics which I believe can be applied to the sky as well.

[142]Heidegger, "Building, Dwelling, Thinking," pp. 155-56.

[143]Ibid., p. 154.

[144]Ibid., p. 160.

[145]Robert Socolow, "Failures of Discourse: Obstacles to the Integration of Environmental Values into Natural Resource Policy," When Values Conflict, ed. Laurence H. Tribe, Corinne S. Schelling, and John Voss (Cambridge, Mass., 1976), p. 14.

[146]Jeremiah Eck argues that life in the home should be oriented around a hearth, a place of light and warmth, in "Home is Where the Hearth Is," Quest, III, April 11, 1979, pp. 10-12.

[147]When I purchased my Volvo five years ago, the woman who had

owned it said it was like parting with an old friend. Indeed, I would find it difficult after all the time I have leaned under the hood, broken down on the roadside in the middle of nowhere, to part with it myself. Still, when it is time, we do have to part with worn-out things. Robert Pirsig tells of care and maintenance in his Zen and the Art of Motorcycle Maintenance (New York, 1974); though there are difficulties with his perspective on technology, he gives vivid and concrete description to how care orients his dealings with his motorcycle.

[148]Heidegger, "Building, Dwelling, Thinking," p. 158.

[149]Heidegger, "Memorial Address," p. 55.

[150]Martin Heidegger, What is Called Thinking?, tr. J. Glenn Gray (New York, 1968), p. 244.

[151]Heidegger, "Building, Dwelling, Thinking," p. 161.

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